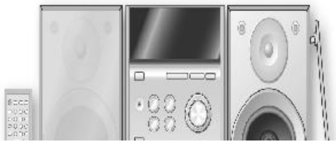
ORDER NO. MD0602026C2

Service Manual

CD Stereo System

SA-PM33E / SA-PM33EB / SA-PM33EG

Colour
(S)... Silver Type



SPECIFICATIONS

Specification

RMS OUTPUT POWER both channel driven simultaneously

10% total harmonic distortion	**20 W per channel (6)**
Input impedance	
MUSIC PORT	**250 mV 12 k**
Output impedance	
HEADPHONE	**16 to 32**
Phone jack	
Terminal	**Stereo, 3.5 mm**
Music Port input jack	
Terminal	**Stereo, 3.5 mm**

■ FM Tuner Section

Frequency range	**87.50 to 108.00 MHz / (50 kHz step)**
Sensitivity	**3.8 V (IHF)**
S/N 26 dB	**1.2 V**
Antenna terminals	**75 (unbalanced)**
Preset station	**FM 15 stations** **AM 15 stations**

■ AM Tuner Section

Frequency range	**522 to 1629 kHz / (9 kHz steps)** **520 to 1630 kHz / (10 kHz steps)**
Sensitivity	
S/N 20 dB (at 999 kHz)	**1122 V/m**

■ Cassette Deck Section

Track system	**4-track, 2-channel**
Heads	
Record/playback	**Solid permalloy head**
Erasure	**Double gap ferrite head**
Motor	**DC servo motor**
Recording system	**AC bias 100 kHz**
Erase system	**AC erase 100 kHz**
Tape speed	**4.8 cm/s**
Overall frequency response (+3 dB, -6 dB) at DECK OUT	
Normal	**35 Hz to 14 kHz**
S/N RATIO	**47 dB (A weighted)**
Wow and flutter	**0.08% (WRMS)**
Fast-forward and rewind time	**Approx. 120 seconds with C-60 cassette tape**

CD Section

Disc played [8 cm or 12 cm]

(1) CD-Audio (CD-DA)

(2) CD-R/RW (CD-DA, MP3 formatted disc)

(3) MP3

Sampling frequency	
CD	**44.1 kHz**
MP3	**32 kHz, 44.1 kHz, 48 kHz**
Bit rate	

MP3	32 kbps to 384 kbps
Decoding	16/20/24 bit linear
Pickup	
Beam source	Semiconductor laser
Wavelength	785 nm
Laser power	CLASS 1
Audio output (Disc)	
Number of channels	2 channel
Frequency response	20 Hz to 20 kHz (+1, -2dB)
Wow and flutter	Below measurable limit
Digital filter	8 fs
D/A converter	MASH (1 bit DAC)

■ General

Power supply	AC 230 V, 50 Hz (E/EG) AC 230 to 240 V, 50 Hz (EB)
Power consumption	63 W
Dimensions (W x H x D)	165 x 227 x 327 mm
Mass	3.5 kg
Operating temperature range	+5 to +35°C
Operation humidity range	5 to 90% RH (no condensation)
Power consumption in standby mode	0.8 W

Notes :

1. Specifications are subject to change without notices. Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

■ System : SC-PM33E-S	Music center: SA-PM33E-S Speaker: SB-PM33EG-M
■ System : SC-PM33EB-S	Music center: SA-PM33EB-S Speaker: SB-PM33EG-M
System : SC-PM33EG-S	Music center: SA-PM33EG-S Speaker: SB-PM33EG-M

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1. Safety Precautions

1.1. General Guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the

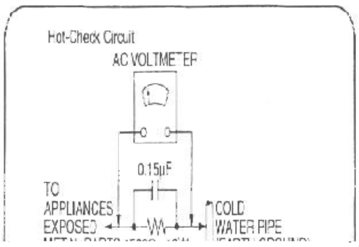
short circuit.

2. **After servicing, ensure that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
3. **After servicing, check for leakage current checks to prevent from being exposed to shock hazards.**

1.1.1. Leakage Current Cold Check

1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Using an ohmmeter measure the resistance value, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2Ω. / When the exposed metal does not have a return path to the chassis, the reading must be .**

Figure 1

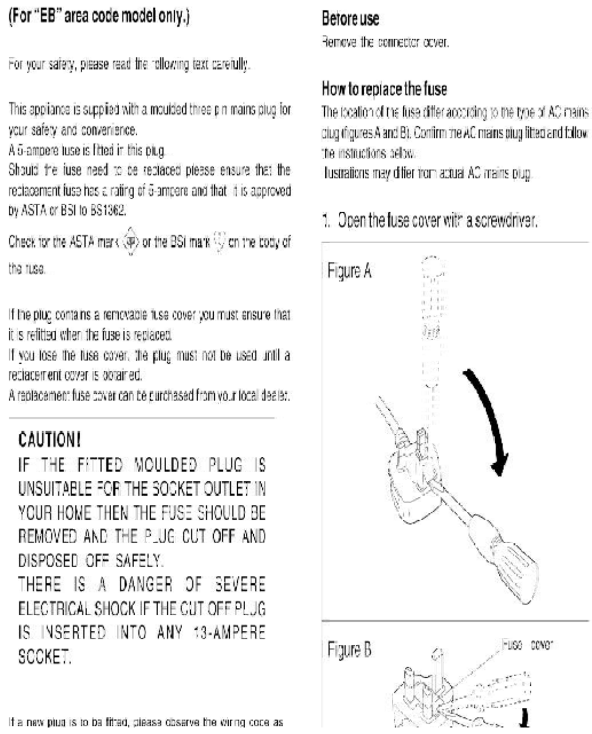


1.1.2. Leakage Current Hot Check (See Figure 1)

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**
2. **Connect a 1.5k , 10 watts resistor, in parallel with a 0.15 F capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.**
3. **Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 volts RMS. A leakage**

current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. should the measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and re-checked before it is returned to the customer.

1.2. Caution for AC Cord



(For "EB" area code model only.)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OFF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted, please observe the wiring code as

Before use
Remove the connector cover.

How to replace the fuse
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

Figure B

1.3. Before Repair and Adjustment

Disconnect AC power, discharge Power Supply Capacitors C501, C601, C839 & C840 through a 10 ,

1W resistor to ground.
DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

- **Current consumption at AC 230 V, 50 Hz in NO SIGNAL mode should be ~150 mA. (E/EG)**
- **Current consumption at AC 230-240 V, 50 Hz in NO SIGNAL mode should be ~150 mA. (EB)**

1.4. Protection Circuitry

The protection circuitry may have operated if either of the following conditions are noticed:

- **No sound is heard when the power is turned on.**
- **Sound stops during a performance.**

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.
If this occurs, follow the procedure outlines below:

1. **Turn off the power.**
2. **Determine the cause of the problem and correct it.**
3. **Turn on the power once again after one minute.**

Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

2. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equiped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equiped with ES devices, place the assembly on a conductive surface such as aluminium foil, to prevent electrostatic charge build up or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**

4. Use only an anti-static solder remover device. Some solder removal devices not classified as “anti-static (ESD protected)” can generate electrical charge to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminium foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.

3. Precaution of Laser Diode

Caution :

This product utilizes a laser diode with the unit turned "ON", invisible laser radiation is emitted from the pick up lens. / Wavelength : 780 nm / Maximum output radiation power from pick up : 100 W/VDE / Laser radiation from pick up unit is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG :

Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt. / Wellenlänge : 780nm / Maximale Strahlungsleistung der Lasereinheit : 100 μ W/VDE / Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

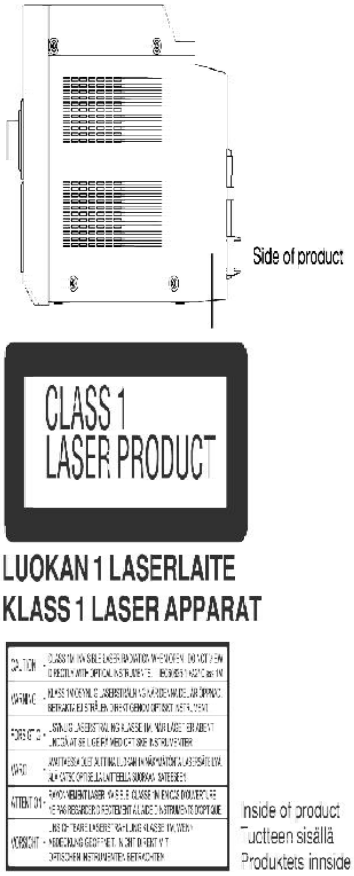
ADVARSEL :

I dette a apparat anvendes laser.

CAUTION!

THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

■ **Use of Caution Labels**


Side of product
CLASS 1
LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
CAUTION
WARNING
FORSIGTIG
VARO
ATTENTION
VORSICHT
Inside of product
Tuotteen sisällä
Produktets innside

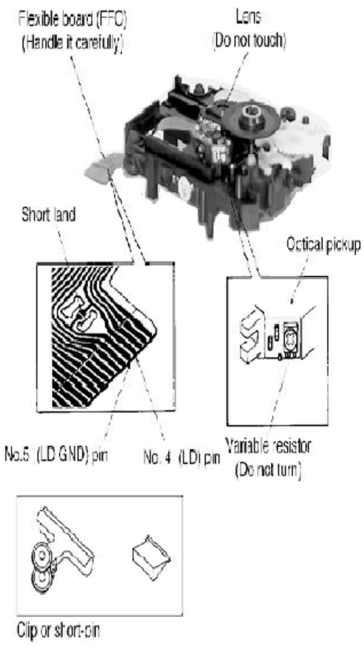
4. Handling Precautions For Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

Handling of CD traverse deck (optical pickup)

1. **Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.**
2. **The short land between the No.4 (LD) and No.5 (GND) pins on the flexible board (FFC) is shorted with a solder build-up to prevent damage to the laser diode.**
3. **Take care not to apply excessive stress to the flexible board (FFC board) (Fig 4.1).**
4. **Do not turn the variable resistor (laser power adjustment). It has already been adjusted.**

Fig 4.1


Flexible board (FFC)
(Handle it carefully)
Lens
(Do not touch)
Short land
Optical pickup
No.5 (LD GND) pin
No. 4 (LD) pin
Variable resistor
(Do not turn)
Clip or short-pin

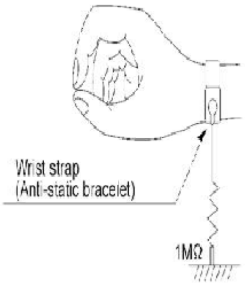
- **Grounding for electrostatic breakdown prevention**

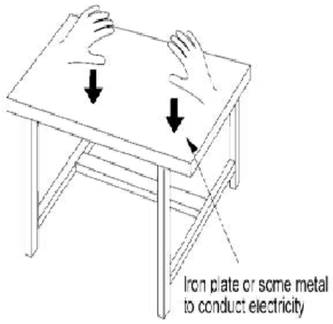
1. **Human body grounding (Fig 4.2)**
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. **Work table grounding (Fig 4.2)**
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution :

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Fig 4.2





Caution when Replacing the Optical Pickup :

The traverse has a short point shorted with solder to protect the laser diode against electrostatics breakdown. Be sure to remove the solder from the short point before making connections.

5. Handling the Lead-free Solder

5.1. About lead free solder (PbF)

Distinction of PbF P.C.B.:

P.C.B.s (manufactured) using lead free solder will have a PbF stamp on the P.C.B.

Caution:

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a high temperature soldering iron. In case of soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C).

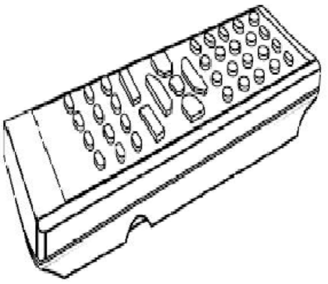
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).

- When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

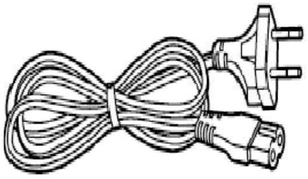
6. Accessories

Note : Refer to Packing Materials & Accessories (Section 24) for part number.

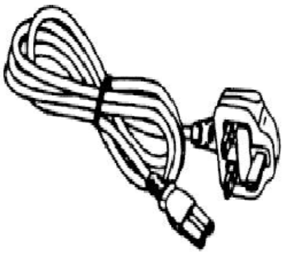
Remote control



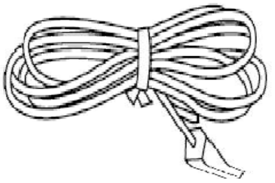
AC cord (For E/EG only)



AC cord (For EB only)



FM indoor antenna



AM loop antenna

Antenna plug adaptor (For EB only)

7. Operating Instructions Procedures

7.1. Main Unit & Remote Control Operation

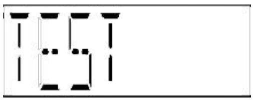
7.2. Disc Information

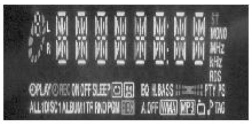
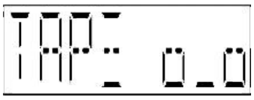
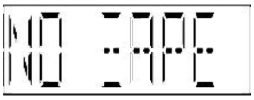
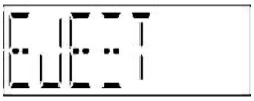
8. Self diagnosis and special mode setting

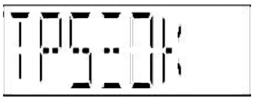
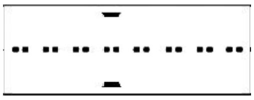
This unit is equipped with features of self-diagnostic & special mode setting for checking the functions & reliability.

8.1. Special Mode Table

Below is the various special modes for checking:-

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Self - Diagnostic Mode	To enter into self diagnostic checking for main unit.		1. Select [ ] for CD mode (Ensure no tape or CD inserted). 2. Press and hold [button for 2 seconds follow by [ ]. To exit, press buttor on main unit or remote control.
Doctor Mode	To enter into Doctor Mode for checking of various items and displaying EEPROM and firmware version. (For more information, refer to section 8.1.2) Note: The micro-processor version as shown is an example. It will be revise when there is an updates.	1. 2. The Check Sum of EEPROM and firmware version will be display for 1 sec. * ROM correction ** Firmware version No:	In any mode: 1. Press [ ] butt on main unit follow by [4] and [7] on remote control. To exit, press buttor on main unit or remote control.

Item		FL Display	Key Operation
Mode Name	Description		Front Key
FL Display Test	To check the FL segments display (All segments will light up)		In doctor mode: 1. Press [DIMMER] button on remote control. To exit, press buttor on main unit or remote control.
CD to Tape Recording Test Mode	To Inspect the recording process from CD to TAPE for the unit. (For more information, refer to section 8.1.3)		In doctor mode: 1. Press [4] button on remote control. To exit, press buttor on main unit or remote control.
Tape Recording and Playing	To Inspect the Tape recording and playing is process for unit. (For more information, refer to section 8.1.4)		In doctor mode: 1. Press [5] button on remote control. To exit, press buttor on main unit or remote control.
Tape Eject test	To check on the tape eject function.		In doctor mode: 1. Press [6] button on remote control. To exit, press buttor on main unit or remote control.
Volume Setting	To Forced Volume Setting.	1. 2. 3.	In doctor mode: 1. Press [7] button on remote control. 2. Press [8] button on remote control. 3. Press [9] button on remote control. To exit, press buttor on main unit or remote control.
Traverse Test	To determine the reliability of CD unit.		In doctor Mode: 1. Press [ ], [1], [2] button on remote control. To exit, press buttor on main unit or remote control.

Item		FL Display	Key Operation
Mode Name	Description		Front Key
TPS	To check FF TPS for deck. (For more information, refer to section 8.1.5)		In doctor mode: 1. Press [button on remote control. To exit, press buttor on main unit or remote control.
Cold Start	To activate cold start ipon next AC power up.		In doctor mode: 1. Press [SLEEP] button on remote control. To exit, press buttor on main unit or remote control.

8.1.1. Cassette Mechanism Self-Diagnostic Mode

Below is information of the checking of cassette deck mechanism

No.	Operation Procedures	Micon operation & processing
1	C-mecha Abnormal Detection shall be executed for DECK.	Check that all DECK mechanism leaf SW is in OFF state.
2	[/\/FF/▶▶|] key is pressed, after loading in a NORMAL type cassette with the recording tab on the left side removed.	FF shall be executed for 2 sec, after which STOP. / Check the following. / { F.REC INH SW } is OFF / { HALF SW } is ON / Reel pulse toggles between H & L.
3	[ ] key is pressed, after loading a NORMAL, CrO2, METAL type cassette with the recording tab on the right side removed.	REW shall be executed for 2 sec, after which STOP. / Check the following. / { F.REC INH SW } is ON / { HALF SW } is ON / Reel pulse toggles between H & L.
4	[TAPE] Key is pressed, after loading in a NORMAL, CrO2, METAL type cassette (cassette for TPS checking purposes and with both recording tabs intact).	TPS operation is executed. Check the following. / { F.REC INH SW } is ON / { HALF SW } is ON / TPS signal changes. / After checking TPS, it shall STOP. / If TPS checking is completed at TAPE END, it is considered as TPS abnormal.
5	[REC] key is pressed, after loading in a NORMAL type cassette (with both recording tabs intact)	REC operation shall not be executed. / Check the following. / { F.REC INH SW } is ON / { HALF SW } is ON

No.	Operation Procedures	Micon operation & processing
6	Self-diagnostic mode is stopped by pressing the [■] Key.	LCD shall display the abnormality item code, when the STOP key is pressed, it shall display the abnormality item code in the following sequence. / [TEST H 0 1] [TEST H 0 2] [TEST H 0 3]
7	To clear all the abnormalities in the memory, press the [■] Key for more than 5 Sec while the self-diagnostic mode is stopped.	At this time, all the abnormalities item in the memory is cleared and is displayed on the LCD.[C L E A R] display for 1 Sec. then,[TEST] is displayed.
8	To cancel the self-diagnostic mode press the [⏻/I] Key.	POWER is OFF.At the next POWER ON, normal operation shall be executed.

- **If RAM check error occurs during microcomputer reset, COLDSTART shall be executed and all the error memory shall be cleared during RAM initialization.**

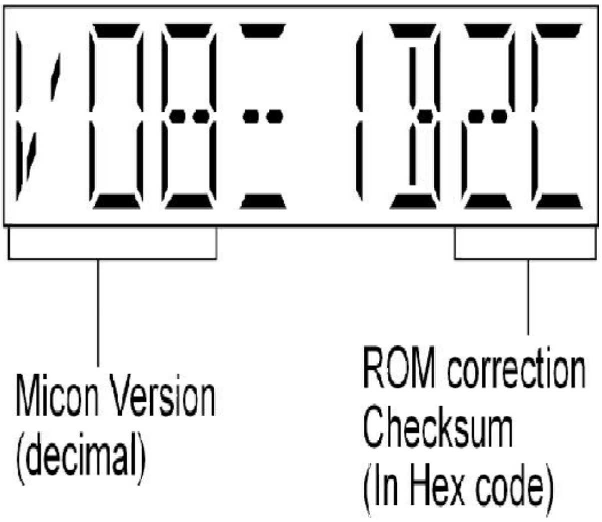
8.1.2. EEPROM Checksum (ROM correction)

Purpose : To check for micro-processor firmware version & EEPROM check (ROM correction).
Below is the procedures for this mode.
Step 1: Enter into Doctor mode (For more information refer to section 8.1 on key operation to enter into this mode.
Step 2: Check for firmware version & EEPROM checksum.

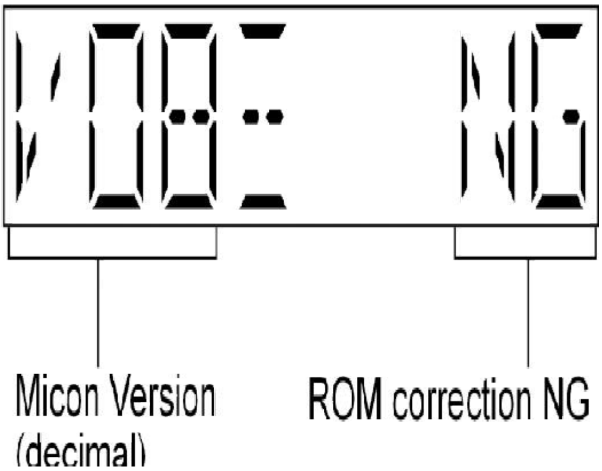
- **When entering into DOCTOR MODE the firmware version & checksum of EEPROM (if applicable) will appear on FL display. Below is information on the EEPROM IC (Rom correction) under 3 examples:**

1. When EEPROM IC is detected and there is no ROM correction:

2. When EEPROM IC is detected and has ROM correction:



3. When EEPROM IC is detected and has ROM correction but NG:



Note: Micro-processor firmware version refers to version No. (Eg.MS079_12) for micro-processor IC. It is subject to change which would update accordingly.

- Rom correction checksum refers to the hex code that is display upon key buttons pressed if an EEPROM is loaded in the unit. (Main P.C.B)

8.1.3. CD to Tape Recording Inspection

Purpose : To check the recording function from CD to Tape.
Below is the procedures for this mode.
Procedure :
Step 1: Enter into Doctor mode (Refer section 8.1 Special Mode Table)
Step 2: Insert CDT-018 (Ensure TOC is completed) to CD unit before proceeding.
Step 3: Press [4] button on remote control. Enter into CD to Tape Test mode. (During this mode, volume is set to [VOLUME 50], Bass & Treble is set to 0dB & EQ is switch off).
Note : When in CD to Tape Recording Test mode, the following process is perform :
a) Deck will rewind to start point (point at the start of recording) & Stop.
b) Recording begins (at constant analogue recording speed) for 3 seconds & Stop.

- However, “Error” would be display if there is no tracks to access to, no tape inserted, no test CD inserted or when the tape erasure prevention tab for FWD side is not suitable for recording.

- When in this mode, if ■, -DEMO button is pressed the process will stops automatically.

8.1.4. Tape Recording and Playing

Purpose : To check the Tape function.

Assuming the recording to TAPE has been done in test 3, only playing TAPE is made.

Below is the procedures for this mode.

Procedure :

Step 1: Enter into Doctor mode (Refer section 8.1 Special Mode Table)

Step 2: Press [5] button on remote control. Enter into Tape recording Test mode. (During this mode, Tape function is set to automatically, volume is set to [VOLUME 50], Bass & Treble is set to 0dB & EQ is switch off).

Step 3: FWD play is made for 3 seconds after setting the above-mentioned, TAPE is stopped 3 seconds later. Tape should open.

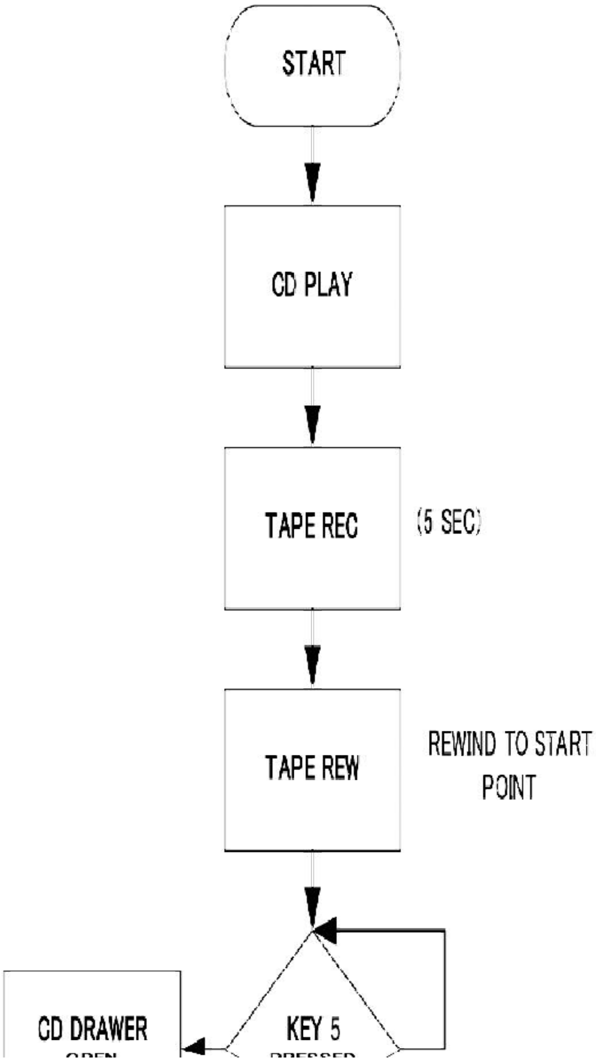
Note : When in CD to Tape Recording Test mode, the following process is perform :

a) If the erasure prevention tab for FWD side the tape is broken, it is judged as an error and the recording operation does not start.

b) If tape stops by detecting a tape end while recording, it becomes an error.

c) If STOP key is pressed while recording or playing, the operation shall be terminated by stopping TAPE. In this case, the doctor mode is not released.

d) DMT is output with the same timing as usual.


START
CD PLAY
TAPE REC
(5 SEC)
TAPE REW
REWIND TO START POINT
KEY 5
CD DRAWER

8.1.5. TPS Inspection

Purpose : To check the TPS.

Below is the procedures for this mode.

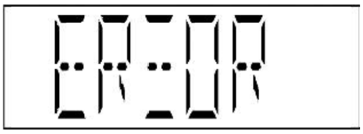
Procedure :

Step 1: Enter into Doctor mode (Refer section 8.1 Special Mode Table)

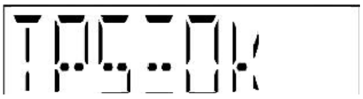
Step 2: Press [∧/FF/▶▶|] button on remote control. Enter into TPS Test mode. (During this mode)

- **Software will start checking for existence of cassette in Deck.**
- **If the Deck does not contain any cassette, it shall end the test and displays the result of the test.**
- **The test will start by playing the Deck in forward direction for 1 sec and then FF TPS.**
- **If TPS signal is OK, the Deck shall be ejected. Below is information on the TPS under 3 examples.**

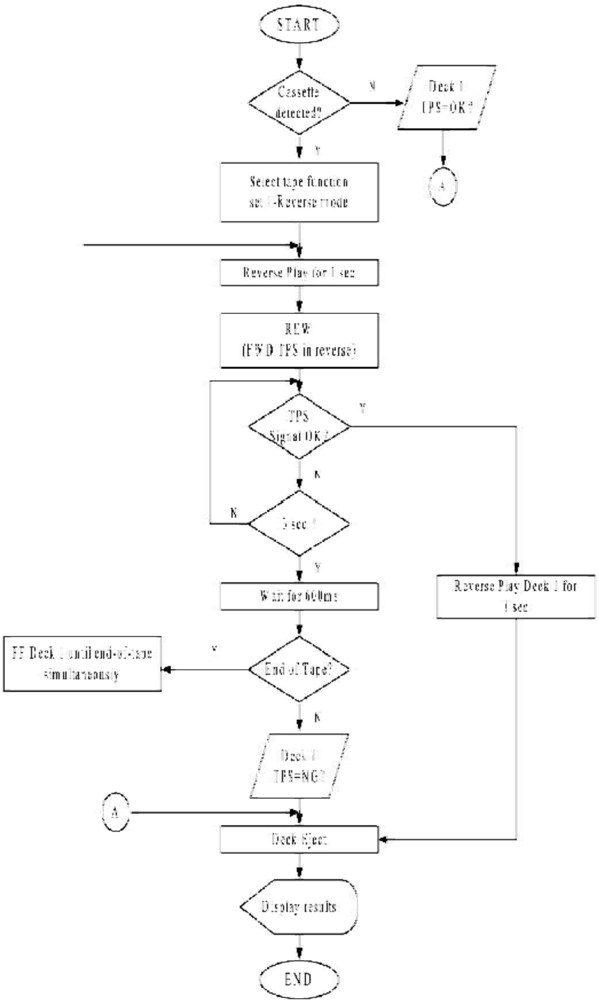
1. **If ERROR Flag is set "ERROR" shall be displayed. TPS check result shall not be shown in this case.**



2. **If Deck TPS check = OK**



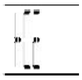
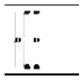
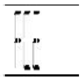
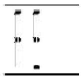
3. **If Deck TPS check = NG**

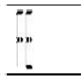

START
Cassette detected?
N
Deck 1 TPS=OK?
A
Y
Select tape function set 1-Reverse mode
Reverse Play for 1 sec
REW
(FWD TPS in reverse)
TPS Signal OK?
Y
N
N
5 sec ?
Y
Wait for 600ms
Reverse Play Deck 1 for 1 sec
FF Deck 1 until end-of-tape simultaneously
Y
End of Tape?
N
Deck 1 TPS=NG?
A
Deck Eject
Display results
END

8.2. Error Code Table

Self-Diagnosis Function provides information on any problems occuring for the unit and its respective components by displaying error codes. Thesed error code such as U, H** and F** are stored in memory and held unless it is cleared.**

The error code is automatically display after entering into self-diagnostic mode.

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
H01	MODE SW abnormal			For deck mechanism unit. Press [on main unit for next error.
H02	REC INH SW abnormal			For deck mechanism unit. Press [on main unit for next error.
H03	HALF SW abnormal			For deck mechanism unit. Press [on main unit for next error.
F01 F02	Reel pulse abnormal TPS abnormal		 	For deck mechanism unit. Press [on main unit for next error.
F15	CD REST SW Abnormal	CD traverse position intial setting operation failsafe counter (1000 ms) waiting for REST SW toturn on. Error No. shall be clear by force or during cold start.		For CD unit (For Traverse). Press [on main unit for next error.
F26	Communication between CD servo LSI and micro-p abnormal.	CD function DTMS command, after system setting, If SENSE = 'L' cannot be detected. Memory shall contain F26 code. After Power on, CD function shall continue, error display shall be "NO DISC". Error No. shall be clear by force or cold start.		For CD unit (For Traverse). Press [on main unit for next error.

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
POWER AMP output abnormal		During normal operation, if DCDET becomes "L", normal POWER OFF process shall not be executed, PCONT shall be switched to "L" immediately. "GOODBYE" shall not be display but the error display F61 is displayed instead. 2 seconds after the F61 displayed, ECONO shall be set to "L" and FL display shall be turned off. The error content shall be memorized when the abnormality occurs and can be display in the C-mecha self-diagnostic mode described later.		For Power Supply Related Error Detection. Press [on main unit for next error.

9. Assembling and Disassembling

9.1. Caution

“ATTENTION SERVICER”
Some chassis components may be have sharp edges. Be careful when disassembling and servicing.

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. / Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**

Warning:

This product uses a laser diode. Refer to “Precaution of Laser Diode”.

ACHTUNG:

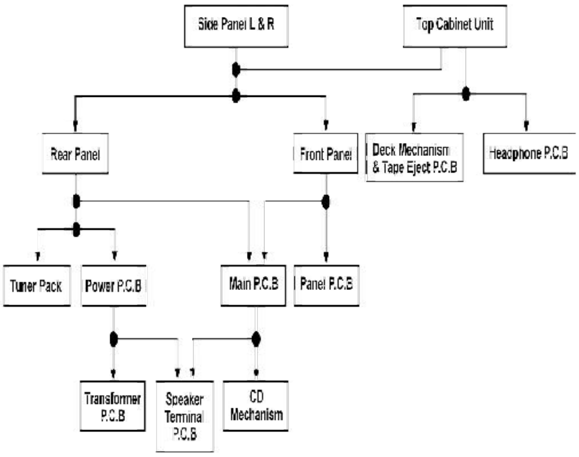
Die Lasereinheit nicht zerlegen.
Die Lasereinheit darf nur gegen eine vom Hertsteller spezifizierte Einheit ausgetauscht werden.

Below is the list of disassembly sections

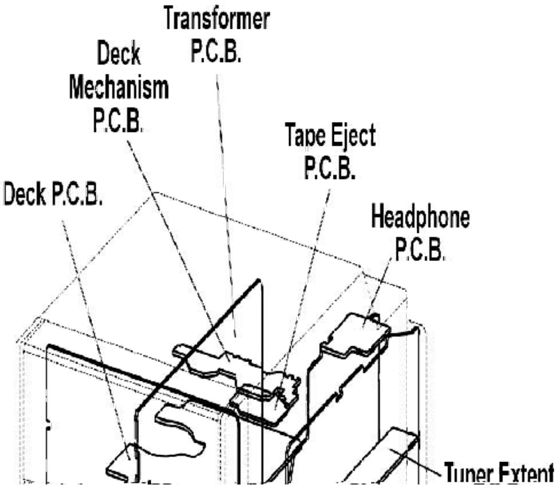
- **Disassembly of Side Panel L & R**
- **Disassembly of Top Cabinet Unit**
- **Disassembly of Deck Mechanism and Tape Eject P.C.B.**
- **Disassembly of Headphone P.C.B.**
- **Disassembly of Front Panel**
- **Disassembly of Panel P.C.B.**
- **Disassembly of Rear Panel**
- **Disassembly of Tuner Pack**
- **Disassembly of Main P.C.B.**
- **Disassembly of Power P.C.B.**
- **Disassembly of Speaker Terminal P.C.B.**
- **Replacement of Transformer P.C.B.**
- **Replacement of CD Mechanism**
- **Replacement of Cassette Lid**
- **Procedures of Replacing Traverse Base (Unit), Driving Gear, and Cam Gear (CD Mechanism Unit)**
- **Procedures for Replacing Optical Pickup (CD Mechanism Unit)**
- **Procedures for Replacement Traverse Gear A and Traverse Gear B (CD Mechanism Unit)**
- **Procedure for Replacing Pinch Roller and Head Block (Deck Mechanism Unit)**
- **Procedure for Replacing Motor, Capstan Belt A, Capstan Belt B, and Winding Belt (Deck Mechanism Unit)**
- **Procedure for Replacing Parts on Deck Mechanism P.C.B.**
- **Handling of cassette tape jam**

9.2. Disassembly flow chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.
To assemble the unit, reverse the steps shown in the chart below.

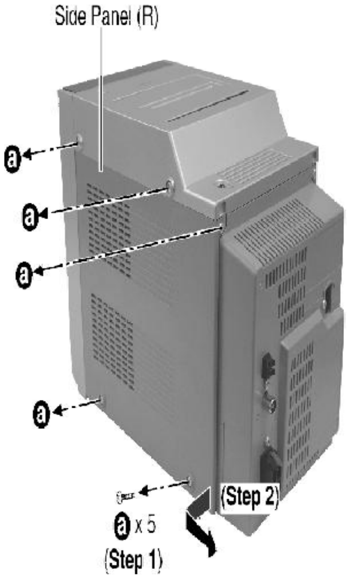

Side Panel L & R
Top Cabinet Unit
Rear Panel
Front Panel
Deck Mechanism & Tape Eject P.C.B
Headphone P.C.B
Tuner Pack
Power P.C.B
Main P.C.B
Panel P.C.B
Transformer P.C.B
Speaker Terminal P.C.B
CD Mechanism

9.3. Main Parts Location Diagram


Transformer P.C.B.
Deck Mechanism P.C.B.
Tape Eject P.C.B.
Deck P.C.B.
Headphone P.C.B.
Tuner Extent

9.4. Disassembly of Side Panel L & R

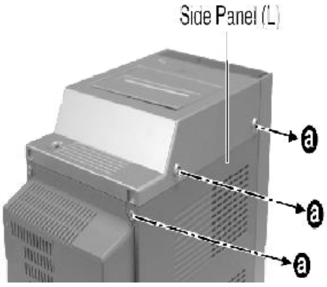
- Disassembly of Side Panel (R)


Side Panel (R)
a
a
a
a
a x 5
(Step 1)
(Step 2)

Step 1: Remove 5 screws.

Step 2: Remove the side panel (R) as arrow shown.

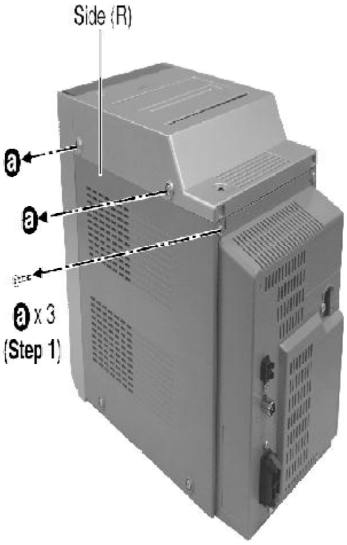
- Disassembly of Side Panel (L)


Side Panel (L)
a
a
a

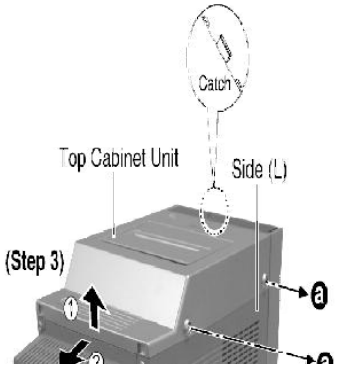
Step 3: Remove 5 screws.

Step 4: Remove the side panel (L) as arrow shown.

9.5. Disassembly of Top Cabinet Unit


Side (R)
a
a
a x 3
(Step 1)

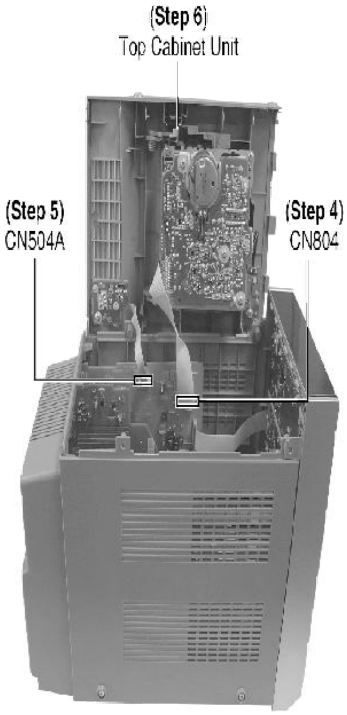
Step 1: Remove 3 screws.


Catch
Top Cabinet Unit
Side (L)
(Step 3)
1
2
a
a

Step 2: Remove 3 screws.

Step 3: Lift up the top cabinet unit, push backward as arrow shown and flip top cabinet unit sideway.

(Be careful of the catch)


(Step 6)
Top Cabinet Unit
(Step 5)
CN504A
(Step 4)
CN804

Step 4: Disconnect FFC cable (CN804).
Step 5: Detach connector (CN504A).
Step 6: Remove top cabinet unit.

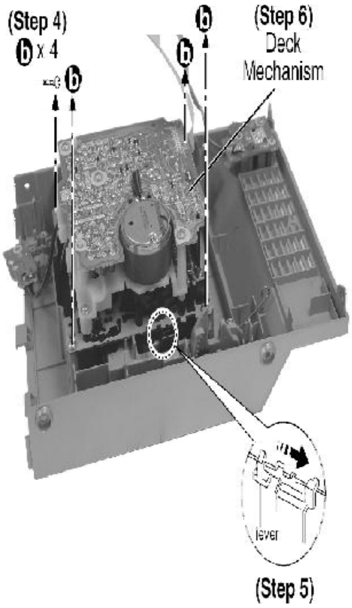
9.6. Disassembly of Deck Mechanism and Tape Eject P.C.B.

- Follow the (Step 1) - (Step 6) of Item 9.5.

- Disassembly of Tape Eject P.C.B.

Step 1: Remove 1 screw.
Step 2: Release the clutch.
Step 3: Remove the Tape Eject P.C.B.

- Disassembly of Deck Mechanism.


(Step 4)
b x 4
b
b
b
(Step 6)
Deck
Mechanism
lever
(Step 5)

Step 4: Remove 4 screws.
Step 5: Push the lever as arrow shown to open the cassette lid.
Step 6: Remove the Deck Mechanism.

9.7. Disassembly of Headphone P.CB.

- Follow the (Step 1) - (Step 6) of Item 9.5.

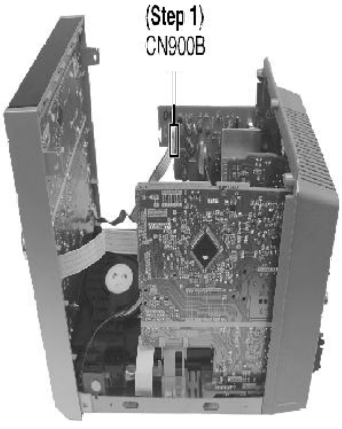
(Step 3)
Headphone
(Step 1)
b x 1

Step 1: Remove 1 screw.
Step 2: Release the clutch.
Step 3: Remove the Headphone P.C.B.

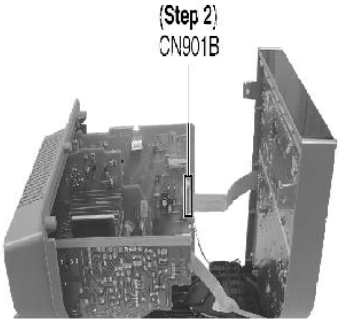
9.8. Disassembly of Front Panel

- Follow the (Step 1) - (Step 4) of Item 9.4.

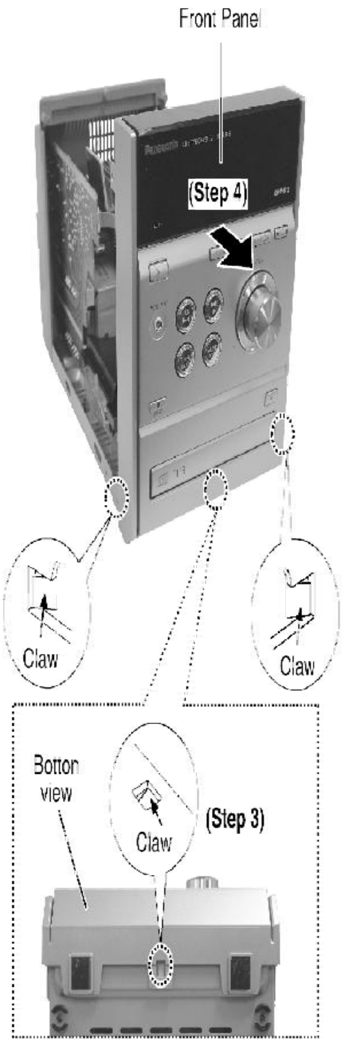
- Follow the (Step 3) - (Step 6) of Item 9.5.


(Step 1)
CN900B

Step 1: Detach connector (CN900B).


(Step 2)
CN901B

Step 2: Disconnect FFC cable (CN901B).


Front Panel
(Step 4)
Claw
Claw
Bottom view
Claw
(Step 3)

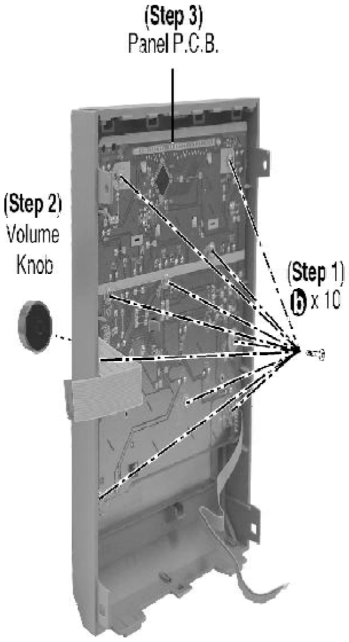
Step 3: Release 3 claws.
Step 4: Remove the Front Panel as arrow shown.

9.9. Disassembly of Panel P.C.B.

- Follow the (Step 1) - (Step 4) of Item 9.4.

- Follow the (Step 3) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (Step 4) of Item 9.8.


(Step 3)
Panel P.C.B.
(Step 2)
Volume
Knob
(Step 1)
b x 10

Step 1: Remove 10 screws.
Step 2: Remove the Volume Knob.
Step 3: Remove the Panel P.C.B.

9.10. Disassembly of Rear Panel

- Follow the (Step 1) - (Step 4) of Item 9.4.

- Follow the (Step 3) - (Step 6) of Item 9.5.

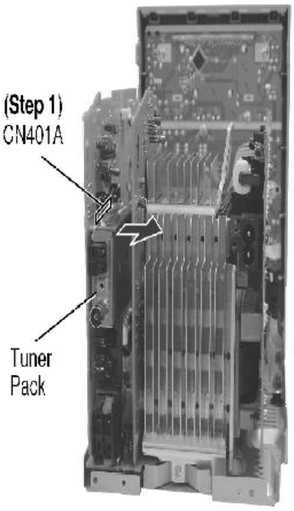
Step 1: Remove 5 screws.
Step 2: Remove the Rear Panel as arrow shown.

9.11. Disassembly of Tuner Pack

- Follow the (Step 1) - (Step 4) of Item 9.4.

- Follow the (Step 3) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (Step 2) of Item 9.10.


(Step 1)
CN401A
Tuner
Pack

Step 1: Detach the connector CN401A and remove the tuner pack as arrow shown.

9.12. Disassembly of Main P.C.B.

- Follow the (Step 1) - (Step 4) of Item 9.4.

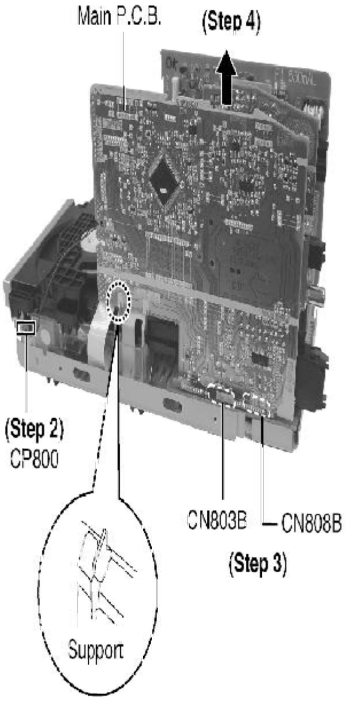
- Follow the (Step 1) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (step 4) of Item 9.8.

- Follow the (Step 1) - (step 2) of Item 9.10.

(Step 1)
CN801

Step 1: Detach the FFC CN801.


Main P.C.B.
(Step 4)
(Step 2)
CP800
CN803B
CN808B
(Step 3)
Support

Step 2: Detach connector CP800.
Step 3: Detach connector CN803B, CN808B.
Step 4: Remove the Main P.C.B. as arrow shown

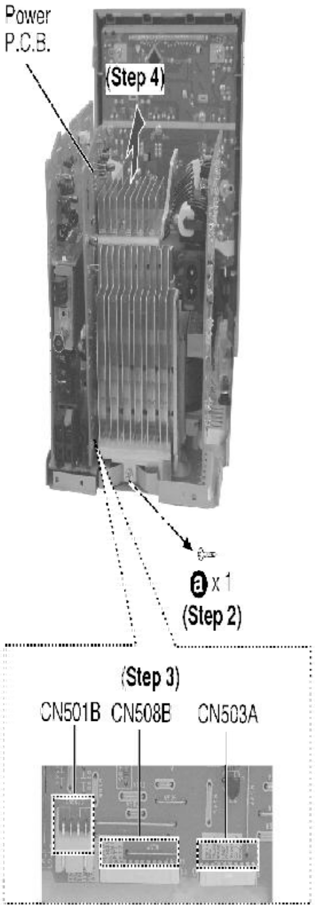
9.13. Disassembly of Power P.C.B.

- Follow the (Step 1) - (Step 4) of Item 9.4.

- Follow the (Step 4) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (Step 2) of Item 9.10.

Step 1: Detach the connector CN505B.


Power
P.C.B.
(Step 4)
a x 1
(Step 2)
(Step 3)
CN501B
CN508B
CN503A

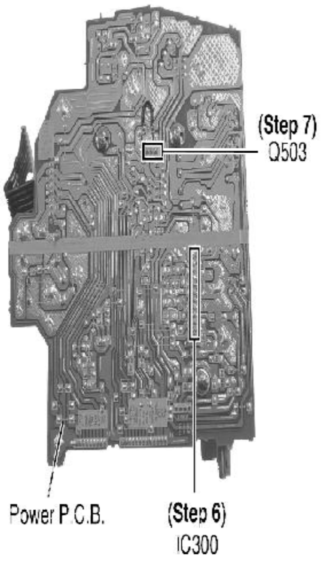
Step 2: Remove 1 screw.

Step 3: Detach the connector CN501B, CN508B, CN503A.

Step 4: Remove the Power P.C.B. as arrow shown.

- Replacement of Power Amplifier IC

Step 5: Remove 3 screws.


(Step 7)
Q503
Power P.C.B.
(Step 6)
IC300

Step 6: Unsolder the terminal of Power Amp IC (IC300) and replace the component.
Step 7: Unsolder the terminal of Transistor (Q503) and replace the component.

9.14. Disassembly of Speaker Terminal P.C.B.

- **Follow the (Step 1) - (Step 4) of Item 9.4.**
- **Follow the (Step 4) - (Step 6) of Item 9.5.**
- **Follow the (Step 1) - (step 2) of Item 9.10.**
- **Follow the (Step 3) of Item 9.12.**
- **Follow the (Step 1) - (step 4) of Item 9.13.**

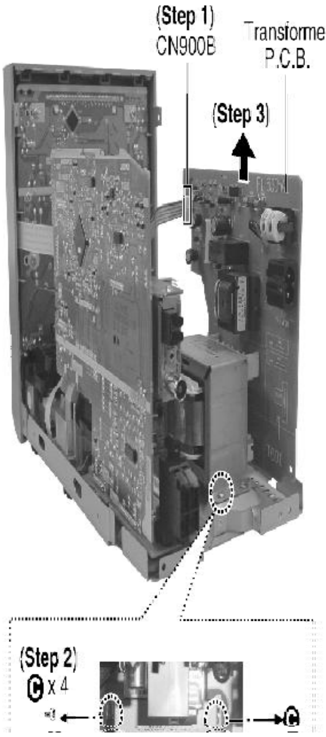
Speaker
(Step 1)

Step 1: Remove 1 screw.
Step 2: Release the Clutch.

Step 3: Remove the Speaker Terminal P.C.B. as arrow shown.

9.15. Replacement of Transformer P.C.B.

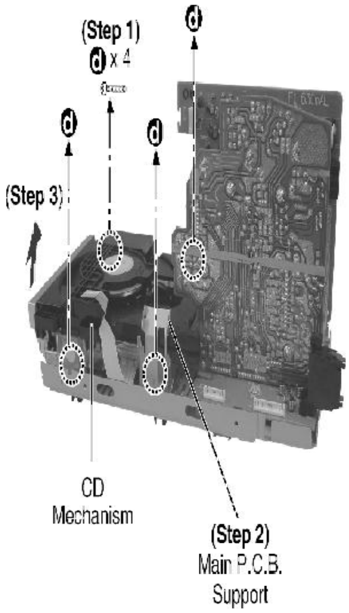
- **Follow the (Step 1) - (Step 4) of Item 9.4.**
- **Follow the (Step 4) - (Step 6) of Item 9.5.**
- **Follow the (Step 1) - (Step 2) of Item 9.10.**
- **Follow the (Step 1) - (Step 4) of Item 9.13.**



Step 1: Detach the connector CN900B.
Step 2: Remove 4 screws.
Step3: Remove the Transformer P.C.B. as arrow shown.

9.16. Replacement of CD Mechanism

- **Follow the (Step 1) - (Step 4) of Item 9.4.**
- **Follow the (Step 4) - (step 6) of Item 9.5.**
- **Follow the (Step 1) - (step 4) of Item 9.8.**
- **Follow the (Step 1) - (step 2) of Item 9.10.**
- **Follow the (Step 1) - (step 4) of Item 9.12.**


(Step 1)
d x 4
d
d
d
(Step 3)
CD Mechanism
(Step 2) Main P.C.B. Support

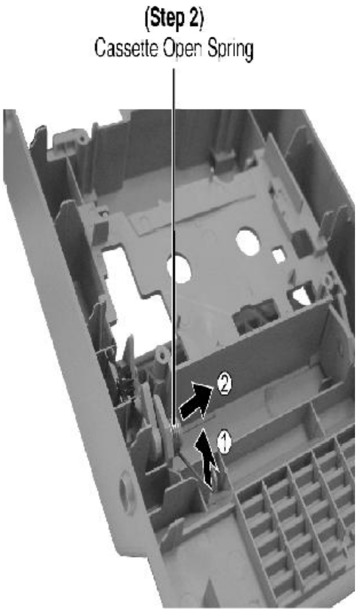
Step 1: Remove 4 screws.
Step 2: Remove the Main P.C.B. support.
Step 3: Remove CD Mechanism as arrow shown.

9.17. Replacement of Cassette Lid

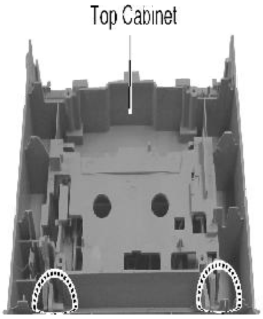
- Follow the (Step 1) - (Step 2) of Item 9.4.
- Follow the (Step 3) - (Step 6) of Item 9.5.
- Follow the (Step 1) - (step 4) of Item 9.6.

Screwdriver

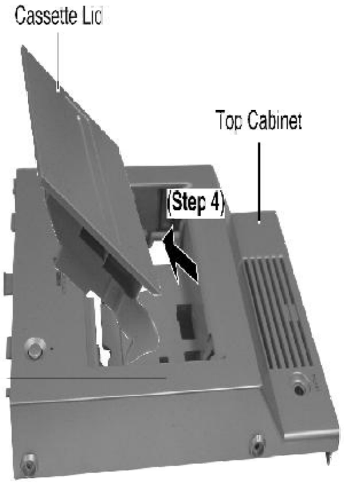
Step 1: Using screwdriver to remove Damper gear as arrow shown.


(Step 2)
Cassette Open Spring
②
①

Step 2: Remove the Cassette Open Spring as arrow shown in order.


Top Cabinet

Step 3: Pull the sides Cassette holders to the direction of the arrows shown.



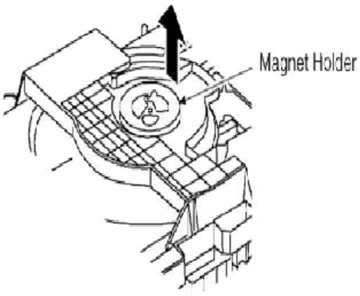
Step 4: Remove the Cassette Lid as arrows shown.

9.18. Procedures of Replacing Traverse Base (Unit), Driving Gear, and Cam Gear (CD Mechanism Unit)

9.18.1. Disassembly of the Disc Tray.

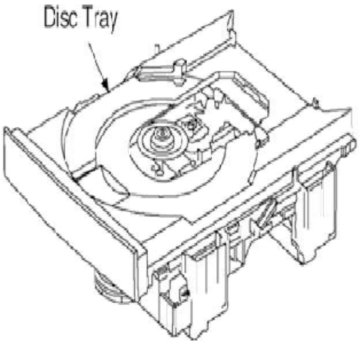
- Follow the (Step 1) - (Step 4) of Item 9.4.
- Follow the (Step 4) - (Step 6) of Item 9.5.
- Follow the (Step 1) - (Step 4) of Item 9.8.
- Follow the (Step 1) - (Step 2) of Item 9.10 .
- Follow the (Step 1) - (Step 4) of Item 9.12.
- Follow the (Step 1) - (Step 3) of Item 9.16.

Note:
When the magnet attracts the traverse base (JUN) that is set to UP, lift the magnet holder backward to remove the clamp plate.


Magnet Holder

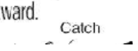
Step 2

Remove the disc tray upward.



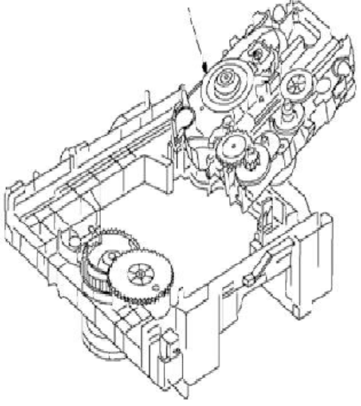
Step 3

Release 2 catches to pull up the traverse base backward.



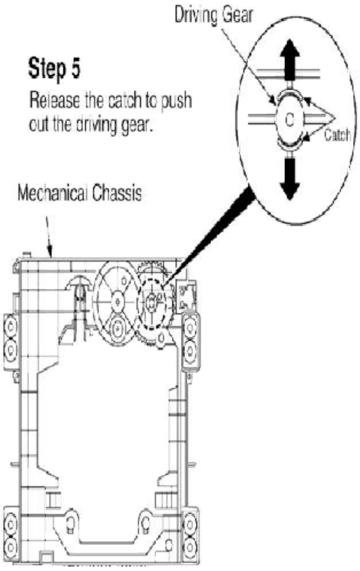
Step 4

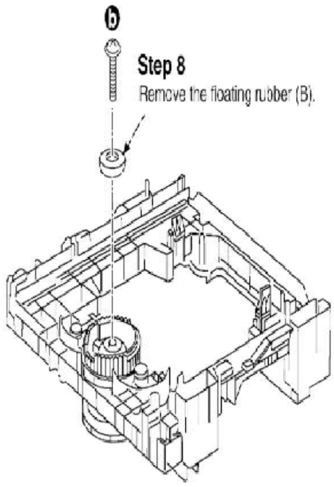
Remove the traverse base.



Step 5

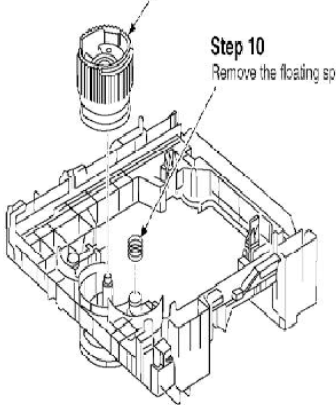
Release the catch to push out the driving gear.


Driving Gear
C
Catch
Mechanical Chassis



Step 7

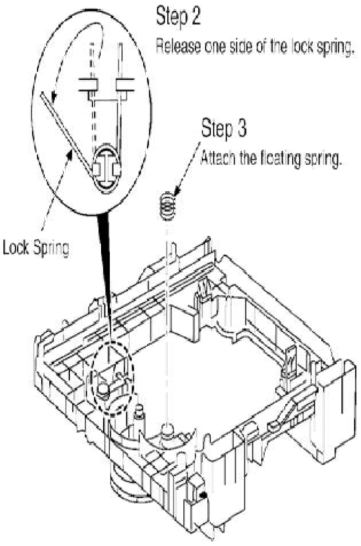
Step 8
Remove the floating rubber (B).



Step 9
Remove the cam gear.

Step 10
Remove the floating spring.

Assembly of Traverse Base, Cam Gear.



Step 2

Release one side of the lock spring.

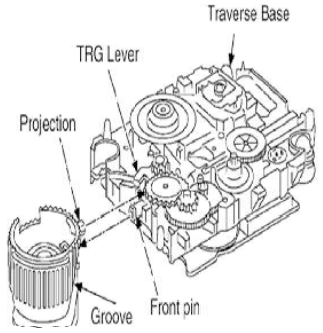
Step 3

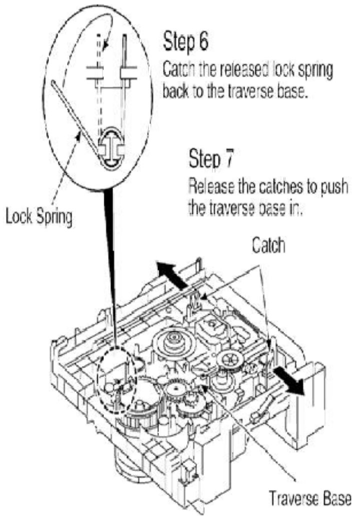
Attach the floating spring.

Lock Spring

Step 4

Engage the front pin of the traverse gear to the groove of the cam gear and the projection of the cam gear between the TRG lever.
(so that the gear is automatically engaged)

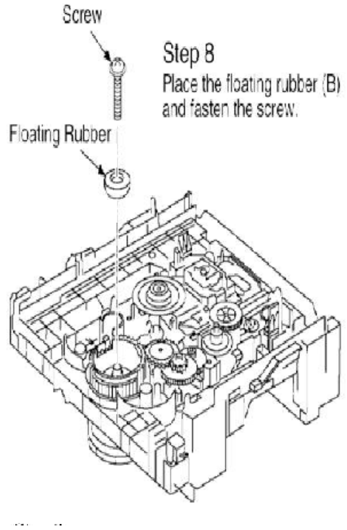

Traverse Base
TRG Lever
Projection
Groove
Front pin



Step 6
Catch the released lock spring back to the traverse base.

Step 7
Release the catches to push the traverse base in.

Lock Spring
Catch
Traverse Base

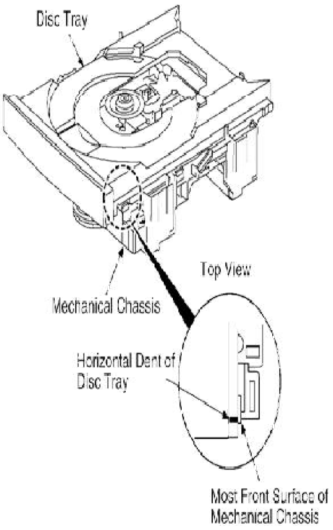


Step 8
Place the floating rubber (B) and fasten the screw.

Screw
Floating Rubber

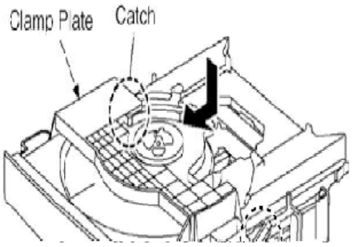
Step 10

Position the disc tray where the horizontal dent located in the most right exterior of the disc tray is attached to the front surface located in the right most exterior of the mechanical chassis.


Disc Tray
Top View
Mechanical Chassis
Horizontal Dent of Disc Tray
Most Front Surface of Mechanical Chassis

Step 11

Insert the clamp plate from the top to attach over the catch.


Clamp Plate
Catch

9.19. Procedures for Replacing Optical Pickup (CD Mechanism Unit)

- Follow the (Step 1) - (Step 4) of Item 9.4.

- Follow the (Step 4) - (Step 6) of Item 9.5.

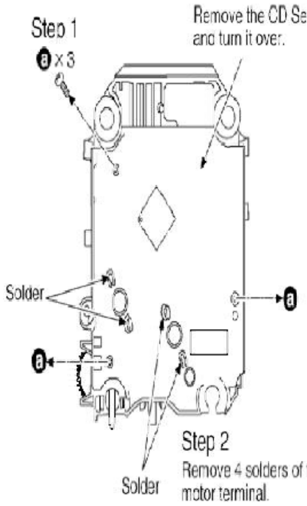
- Follow the (Step 1) - (Step 4) of Item 9.8.

- Follow the (Step 1) - (Step 2) of Item 9.10 .

- Follow the (Step 1) - (Step 4) of Item 9.12.

- Follow the (Step 1) - (Step 3) of Item 9.16.

- Follow the (Step 1) - (Step 4) of Item 9.18.1.

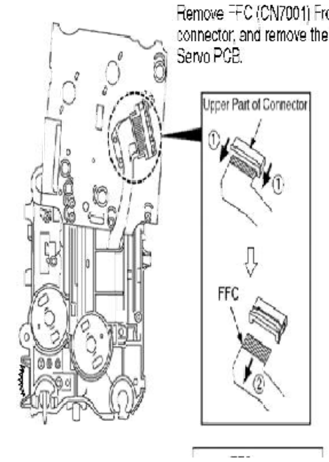

Step 1
a x 3
Solder
a
a
Solder

Step 3

Remove the CD Servo PCB and turn it over.

Step 2

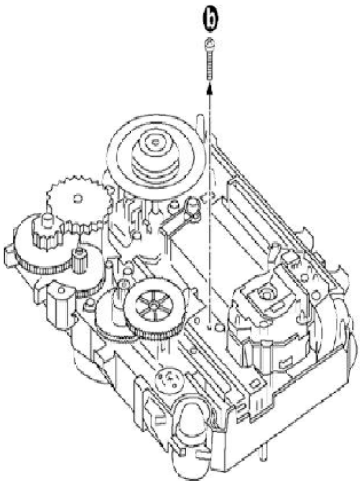
Remove 4 solders of the motor terminal.

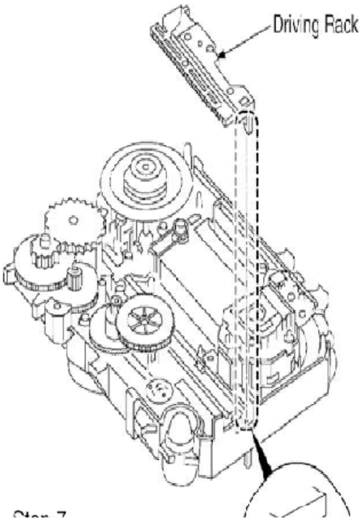

Upper Part of Connector
①
①
FFC
②

Step 4

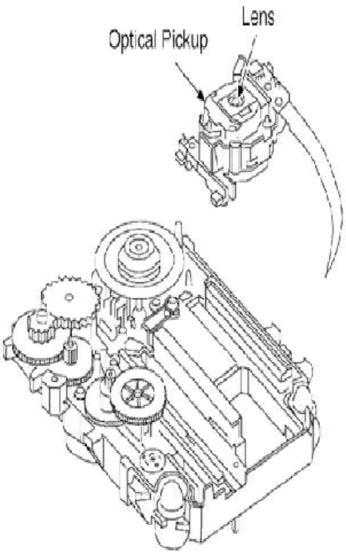
Remove FFC (CN7001) From the connector, and remove the CD Servo PCB.

Step 6




Driving Rack

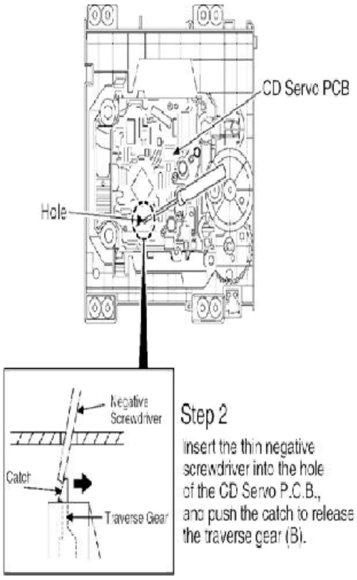
Step 7



Note:
Do not touch the optical pickup lens.

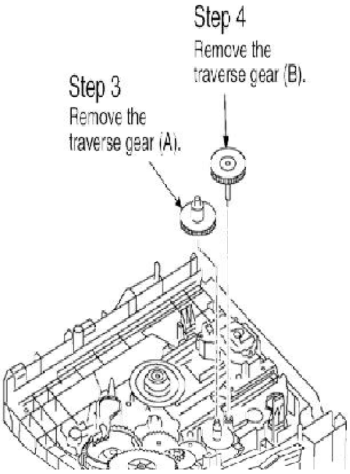
9.20. Procedures for Replacement Traverse Gear A and Traverse Gear B (CD Mechanism Unit)

- **Follow the (Step 1) - (Step4) of Item 9.4.**
- **Follow the (Step 4) - (Step 6) of Item 9.5.**
- **Follow the (Step 1) - (Step 4) of Item 9.8.**
- **Follow the (Step 1) - (Step 2) of Item 9.10 .**
- **Follow the (Step 1) - (Step 4) of Item 9.12.**
- **Follow the (Step 1) - (Step 3) of Item 9.16.**
- **Follow the (Step 1) - (Step 2) of Item 9.18.1.**


CD Servo PCB
Hole
Negative Screwdriver
Catch
Traverse Gear

Step 2

Insert the thin negative screwdriver into the hole of the CD Servo P.C.B., and push the catch to release the traverse gear (B).



Step 4

Remove the traverse gear (B).

Step 3

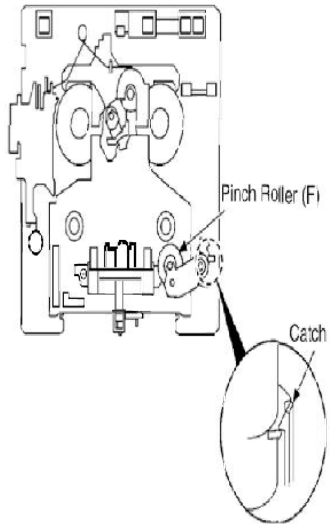
Remove the traverse gear (A).

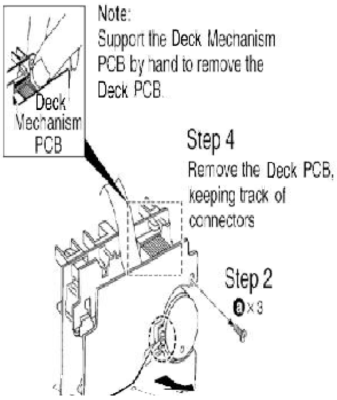
9.21. Procedure for Replacing Pinch Roller and Head Block (Deck Mechanism Unit)

- Follow the (Step 1) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (Step 6) of Item 9.6.

Step 1
Release catches to remove the pinch rollers (F).

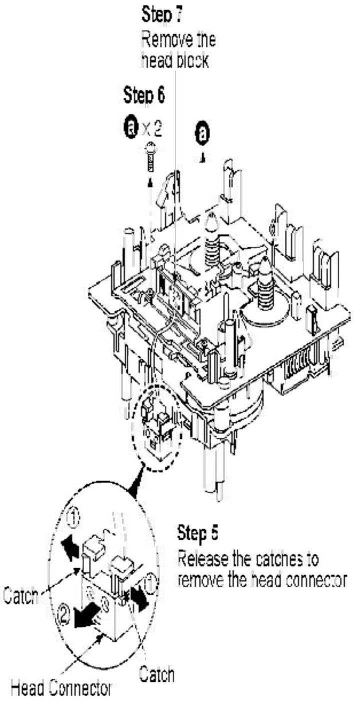

Pinch Roller (F)
Catch


Deck Mechanism PCB

Note:
Support the Deck Mechanism PCB by hand to remove the Deck PCB.

Step 4
Remove the Deck PCB, keeping track of connectors

Step 2
ⓐ×3



Step 7
Remove the head block

Step 6
ⓐ x 2

Step 5
Release the catches to remove the head connector

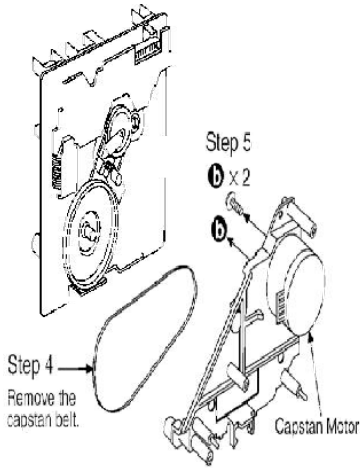
9.22. Procedure for Replacing Motor, Capstan Belt A, Capstan Belt B, and Winding Belt (Deck Mechanism Unit)

- Follow the (Step 1) - (Step 6) of Item 9.5.

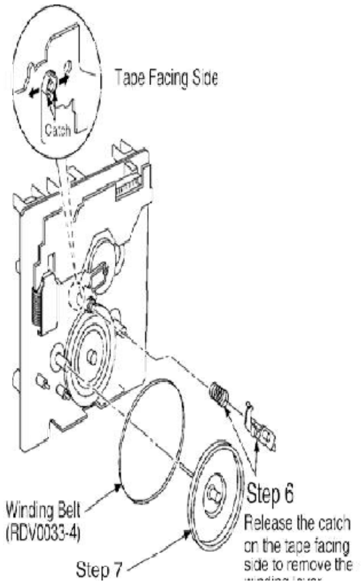
- Follow the (Step 1) - (Step 6) of Item 9.6.

- Follow the (Step 1) - (Step 4) of Item 9.21.

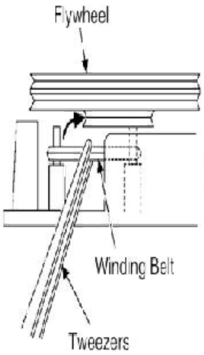
Step 3
Remove the sub chassis.


Step 5
b x 2
b
Capstan Motor

Step 4
Remove the capstan belt.

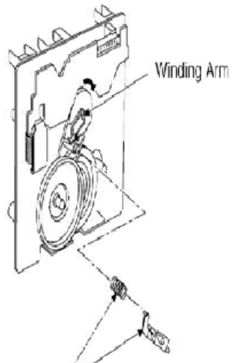

Tape Facing Side
Catch
Winding Belt
(RDV0033-4)
Step 7

Step 6
Release the catch on the tape facing side to remove the


Flywheel
Winding Belt
Tweezers

Step 4

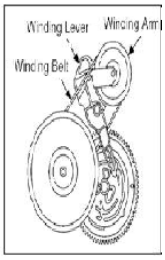
Catch the winding belt on the flywheel (F).


Winding Arm

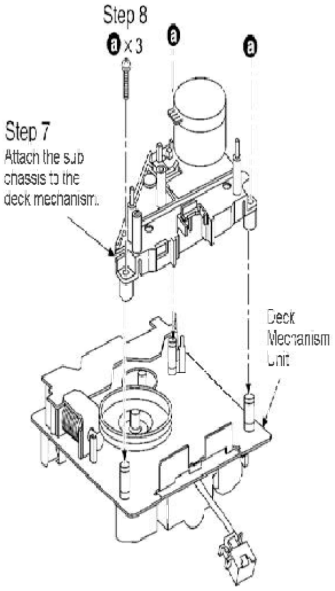
Step 5

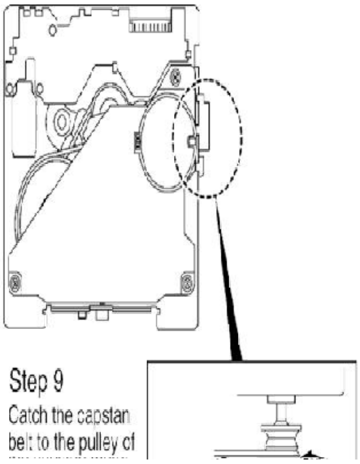
Install the winding lever and spring while the winding arm is pressed to the arrow direction. (Be sure that the winding lever is firmly inserted and the catch is hooked.)

Note:
The winding lever should be positioned as shown in the right figure.


Winding Lever
Winding Arm
Winding Belt

Step 6


Step 8
a x 3
a
a
Step 7
Attach the sub chassis to the deck mechanism.
Deck Mechanism Unit


Step 9
Catch the capstan belt to the pulley of

9.23. Procedure for Replacing Parts on Deck Mechanism PCB

- Follow the (Step 1) - (Step 6) of Item 9.5.

- Follow the (Step 1) - (Step 6) of Item 9.6.

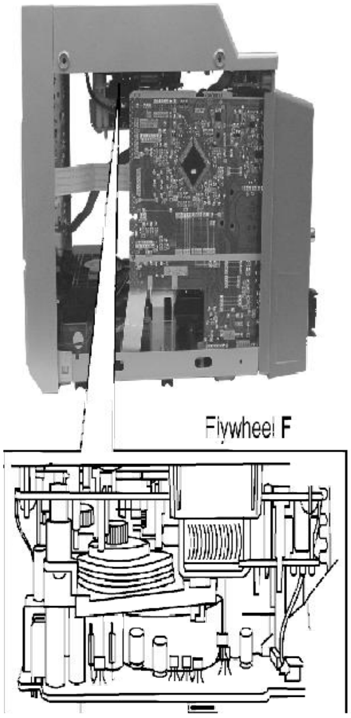
- Follow the (Step 1) - (Step 4) of Item 9.21.

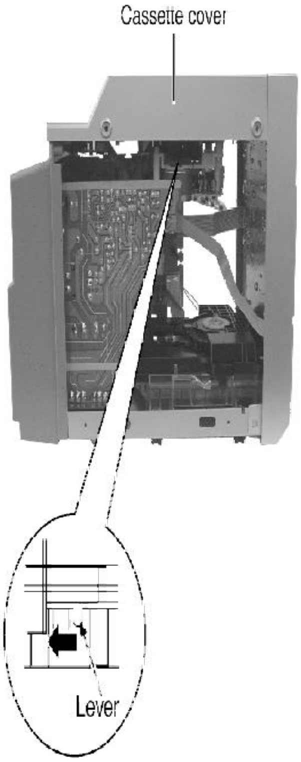
9.24. Handling of cassette tape jam

- Follow the (Step 1) - (Step 4) of Item 9.4.

Step 1

If the cassette tape is not ejected due to twining around capstan or pinch roller during playing or recording, rotate a flywheel F to the arrow direction to remove twined tape.




Step 2: Push the lever to the arrow direction, open the cassette cover and take out the cassette tape.

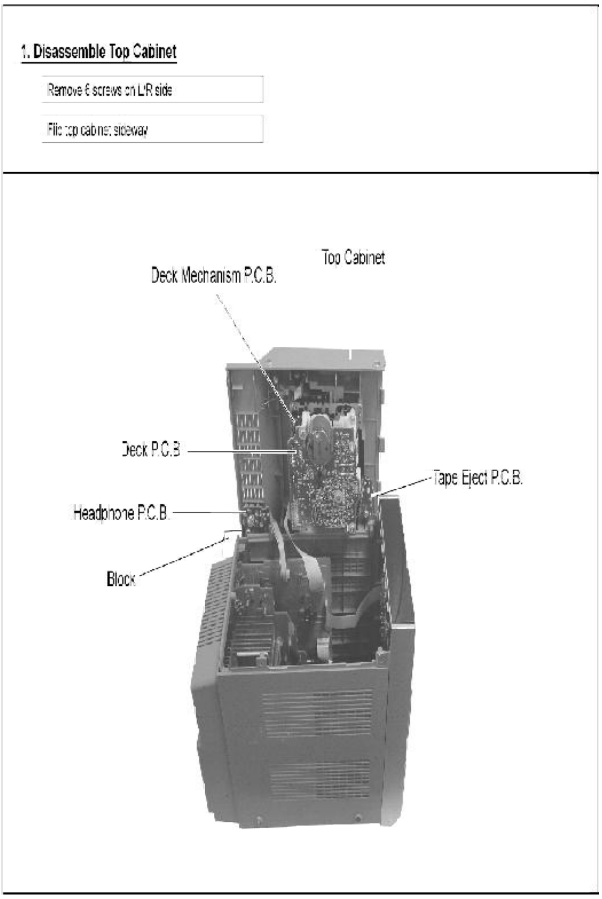
10. Service Fixture and Tools

Service Tools	
Extension P.C.B.	
(A) Main P.C.B. - Speaker Terminal P.C.B.	**RFKZPM33E**

11. Service Positions

Note: For description of the disassembly procedures, see the Section 9

11.1. Checking and Repairing of Deck, Deck Mechanism, Headphone P.C.B. and Tape Eject P.C.B.



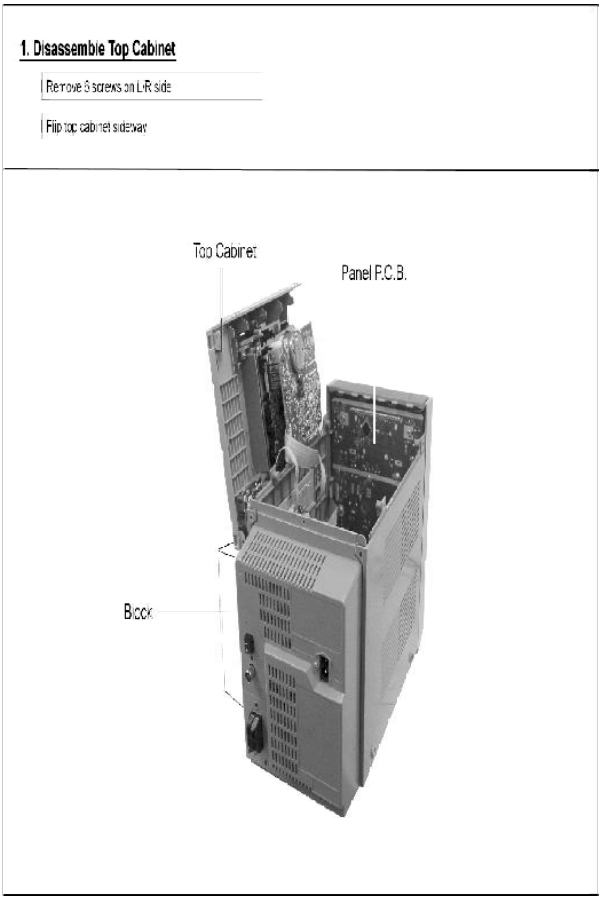
1. Disassemble Top Cabinet

Remove 6 screws on L/R side

Flip top cabinet sideway

Top Cabinet
Deck Mechanism P.C.B.
Deck P.C.B
Tape Eject P.C.B.
Headphone P.C.B
Block

11.2. Checking and Repairing of Panel P.C.B.



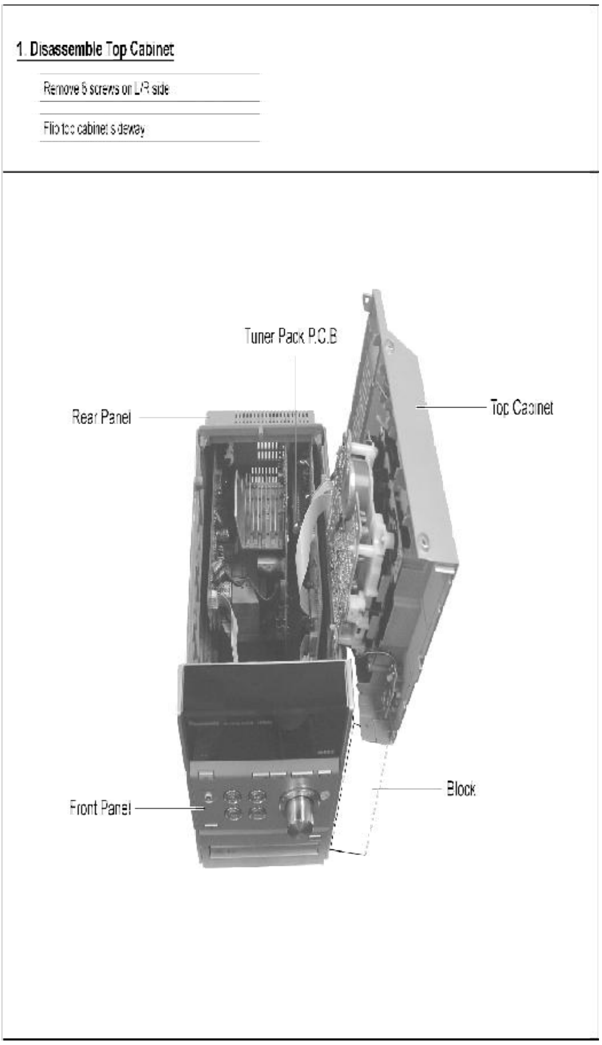
1. Disassemble Top Cabinet

Remove 6 screws on L/R side

Flip top cabinet sideway

Top Cabinet
Panel P.C.B.
Block

11.3. Checking and Repairing of Tuner Pack P.C.B.



1. Disassemble Top Cabinet

Remove 6 screws on L/R side

Flip top cabinet sideway

Tuner Pack P.C.B
Rear Panel
Top Cabinet
Block
Front Panel

11.4. Checking and Repairing of Transformer P.C.B.

1. Remove Side Panel L/R

Remove 10 screws on L/R side

Remove L/R side panel

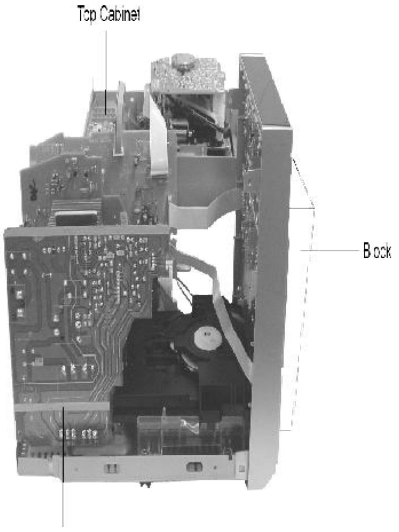
2. Disassemble Top Cabinet

Flip top cabinet sideway

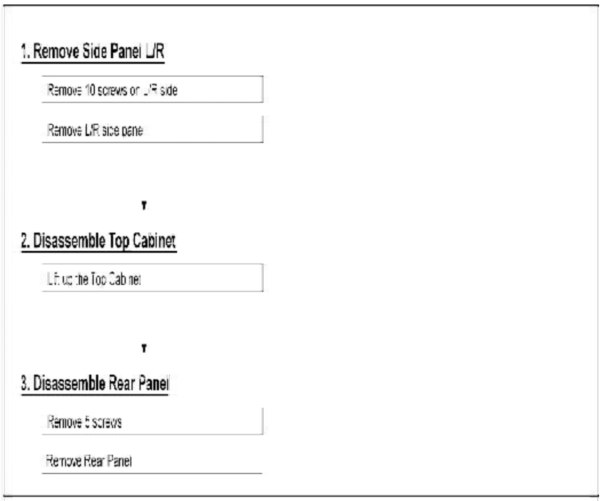
3. Disassemble Rear Panel

Remove 6 screws

Remove Rear Panel



11.5. Checking and Repairing of Main P.C.B.



1. Remove Side Panel L/R

Remove 10 screws on L/R side

Remove L/R side panel

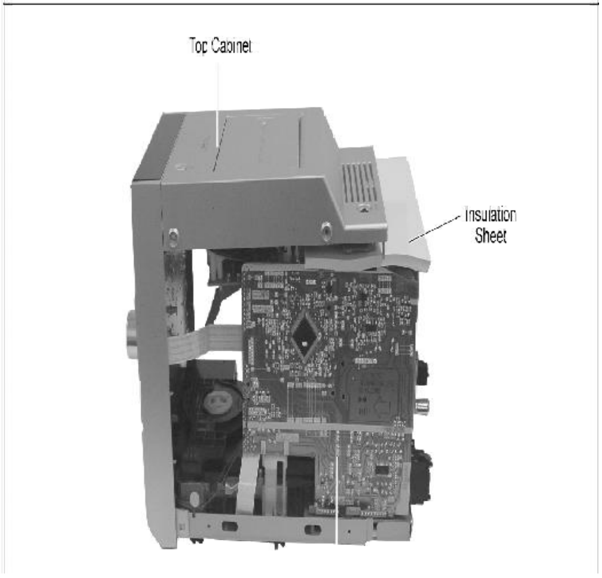
2. Disassemble Top Cabinet

Lift up the Top Cabinet

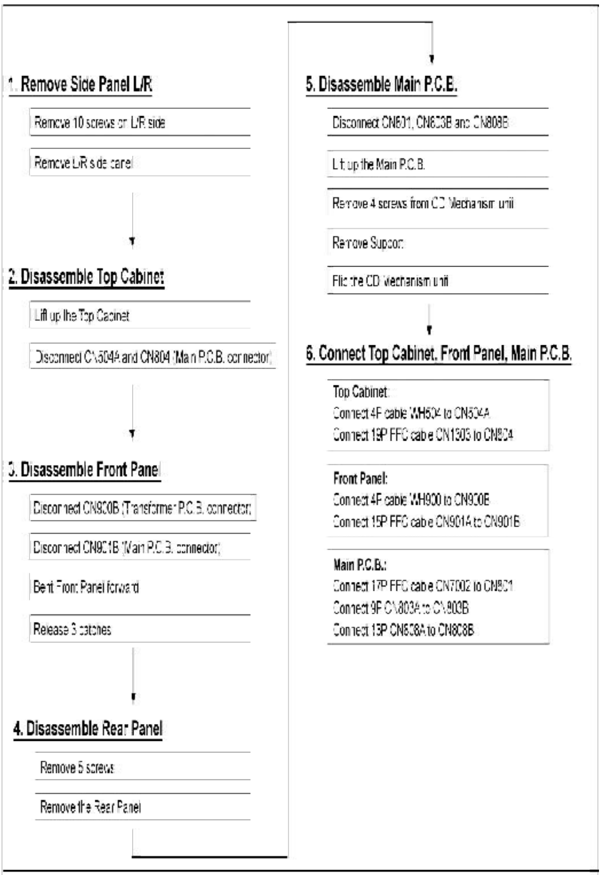
3. Disassemble Rear Panel

Remove 5 screws

Remove Rear Panel


Top Cabinet
Insulation Sheet

11.6. Checking and Repairing of CD Mechanism P.C.B.



1. Remove Side Panel L/R

- Remove 10 screws on L/R side
- Remove L/R side panel

2. Disassemble Top Cabinet

- Lift up the Top Cabinet
- Disconnect CN504A and CN804 (Main P.C.B. connector)

3. Disassemble Front Panel

- Disconnect CN900B (Transformer P.C.B. connector)
- Disconnect CN901B (Main P.C.B. connector)
- Bent Front Panel forward
- Release 3 catches

4. Disassemble Rear Panel

- Remove 5 screws
- Remove the Rear Panel

5. Disassemble Main P.C.B.

- Disconnect CN601, CN803B and CN808B
- Lift up the Main P.C.B.
- Remove 4 screws from CD Mechanism unit
- Remove Support
- Flip the CD Mechanism unit

6. Connect Top Cabinet, Front Panel, Main P.C.B.

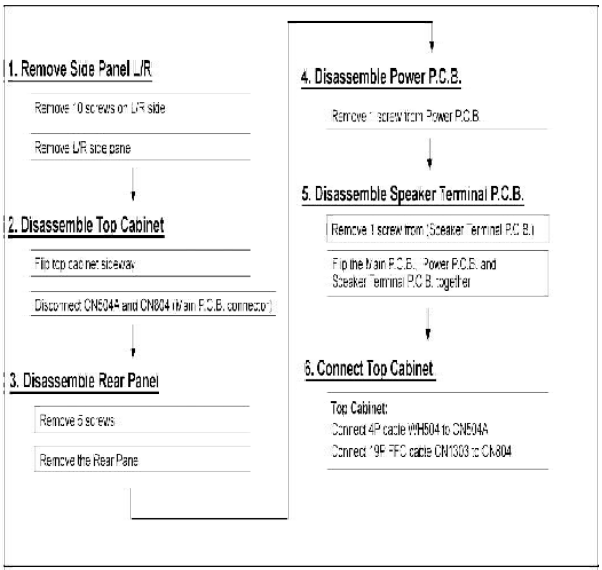
Top Cabinet:
Connect 4P cable WH504 to CN504A
Connect 19P FFC cable CN1303 to CN804

Front Panel:
Connect 4P cable WH900 to CN900B
Connect 15P FFC cable CN901A to CN901B

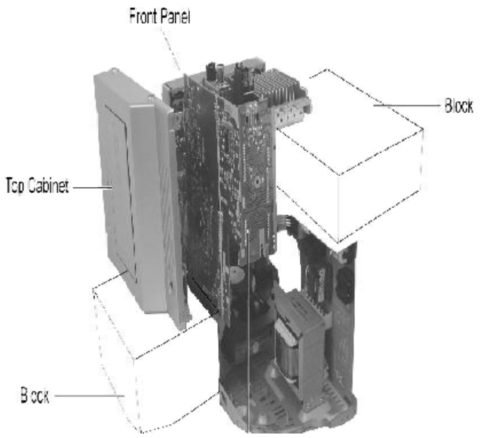
Main P.C.B.:
Connect 17P FFC cable CN7002 to CN801
Connect 9P CN803A to CN803B
Connect 13P CN808A to CN808B

Top Cabinet
Front Panel

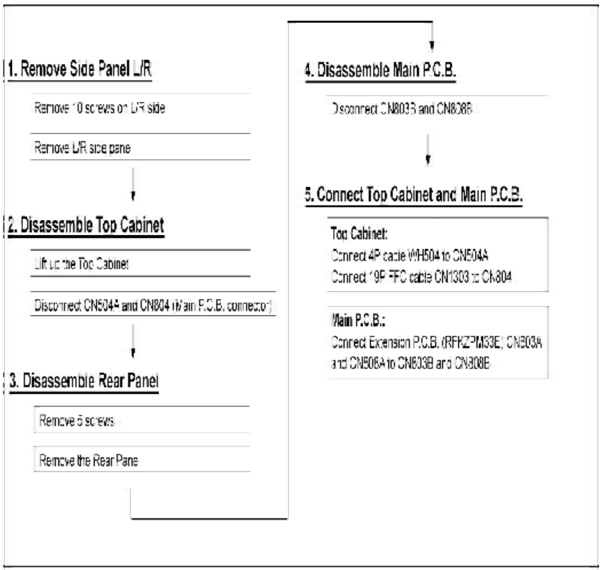
11.7. Checking and Repairing of Speaker Terminal P.C.B.



1. Remove Side Panel L/R
   - Remove 10 screws on L/R side
   - Remove L/R side pane
2. Disassemble Top Cabinet
   - Flip top cabinet sideway
   - Disconnect CN504A and CN804 (Main P.C.B. connector)
3. Disassemble Rear Panel
   - Remove 5 screws
   - Remove the Rear Pane
4. Disassemble Power P.C.B.
   - Remove 1 screw from Power P.C.B.
5. Disassemble Speaker Terminal P.C.B.
   - Remove 1 screw from (Speaker Terminal P.C.B.)
   - Flip the Main P.C.B., Power P.C.B. and Speaker Terminal P.C.B. together
6. Connect Top Cabinet
   - Top Cabinet:
     Connect 4P cable WH504 to CN504A
     Connect 19P FFC cable CN1303 to CN804



11.8. Checking and Repairing of Power P.C.B.



1. Remove Side Panel L/R

Remove 10 screws on L/R side

Remove L/R side pane

2. Disassemble Top Cabinet

Lift up the Top Cabinet

Disconnect CN504A and CN804 (Main P.C.B. connector)

3. Disassemble Rear Panel

Remove 5 screws

Remove the Rear Pane

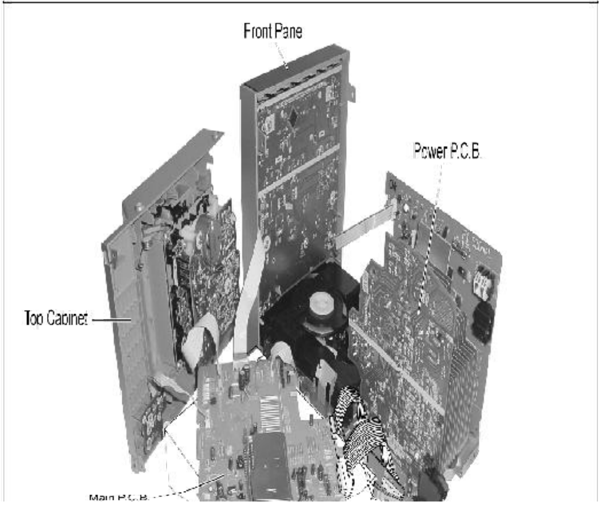
4. Disassemble Main P.C.B.

Disconnect CN803B and CN808B

5. Connect Top Cabinet and Main P.C.B.

Top Cabinet:
Connect 4P cable WH504 to CN504A
Connect 19P FFC cable CN1303 to CN804

Main P.C.B.:
Connect Extension P.C.B. (RFKZPM53E) CN803A and CN808A to CN803B and CN808B



12. Procedure for Checking Operation of Individual Parts of Deck Mechanism Unit

12.1. Operation Check with Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Fig. 6)
2. Supply DC5V to MOTOR. (MOTOR rotates.) (Fig. 5)
3. Insert a cassette tape to the unit.
4. Supply DC9V to the plunger, and turn the power ON and OFF. (Power +PL, -PL) (Fig. 5)
   A. FWD PLAY: Supply the plunger power in a flash. (ON: approx. 5msec)

B. FWD FF: Supply the plunger power in a flash at PLAY mode. (ON: approx. 5msec)

C. STOP: Supply the plunger power in a flash at FWD FF mode. (ON: approx. 5msec)

D. REV PLAY: Supply the plunger power in a normal timing at STOP mode. (ON: approx. 200msec)

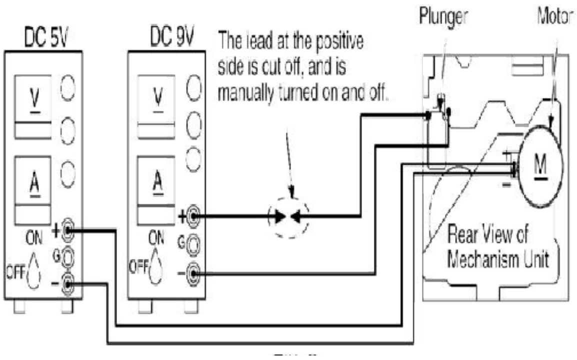
E. REV REW: Supply the plunger power in a flash at REV PLAY mode. (ON: approx. 50msec)

F. STOP: Supply the plunger power in a flash at FF mode. (ON: approx. 50msec)

Repeat the operation (→ FWD PLAY)

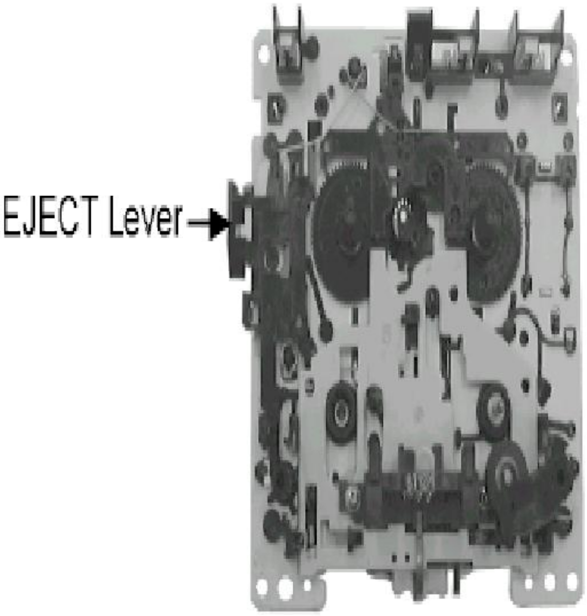
(Note) Other operation may start if a timing of supplying the plunger power is missed.

12.1.1. Connection Status between Mechanism and Power Supply (Motor, Plunger)


Plunger
Motor
DC 5V
DC 9V
The lead at the positive side is cut off, and is manually turned on and off.
V
A
ON
OFF
+
G
−
M
Rear View of Mechanism Unit

12.1.2. Operative Parts of Deck Mechanism Unit (EJECT lever fitted with rubber band, / Plunger/Rib operation)

Fig. 6



12.2. Operation Check without Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Fig. 6)
2. Supply DC5V to MOTOR. (→ MOTOR rotates.)
3. Lift up the mechanism unit’s plunger/rib with the tip of a negative screwdriver, and operate the unit in the same timing as / supplying the power. (Fig. 7) /

Fig. 7

13. Measurement And Adjustments

13.1. Cassette Deck Section

13.1.1. Requirements

- Test tape (QZZCFM) (QZZCWAT)

- **Normal blank cassette tape (QZZCRA)**
- **Digital frequency counter**
- **Oscilloscope**
- **Electrical voltmeter**
- **Headphone jack output jig (Fig. 8)**

13.1.2. Setting of Unit

- **VOLUME: MAX**

13.1.3. Preparations

1. **Apply under [9. Assembling and Disassembling].**
2. **Remove 4 screws from the mechanism unit to disassemble. under [9. Assembling and Disassembling].**
3. **Connect the headphone jack output jig (Fig. 8) to headphone jack.**

Fig. 8

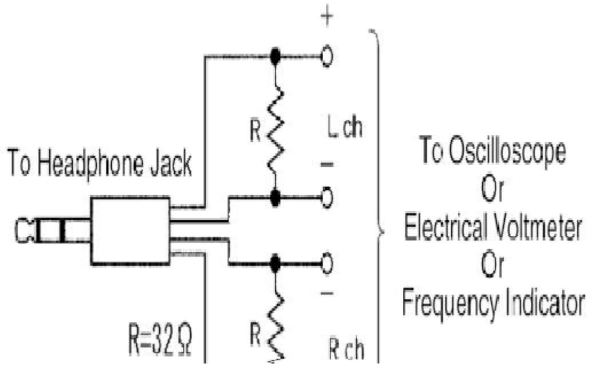
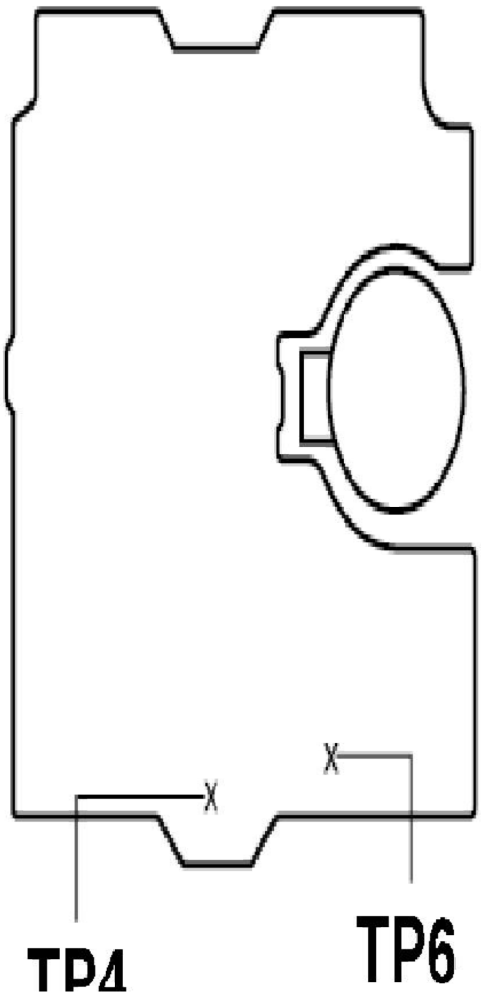

+
R
L ch
-
To Headphone Jack
To Oscilloscope
Or
Electrical Voltmeter
Or
Frequency Indicator
-
R=32Ω
R
R ch

Fig. 9



13.1.4. Tape Speed Adjustment

- Normal speed adjustment (only during forward playback)
(Product reference value: 3,000±90Hz)

1. Connect a frequency indicator. (Fig. 12)

2. Playback the middle portion of the test tape (QZZCWAT).

3. Adjust the motor screw so that the following output level is produced. (Fig. 10)
Adjustment Range: 3,000 ± 90Hz (a constant speed)

Fig. 10

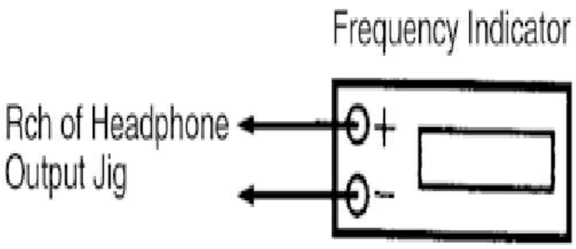
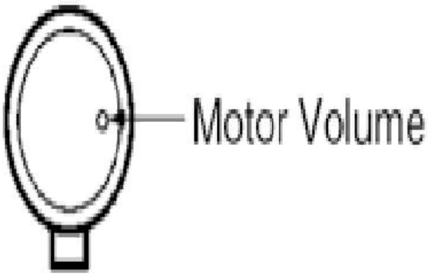

Frequency Indicator
Rch of Headphone
Output Jig
+
-

Fig. 11

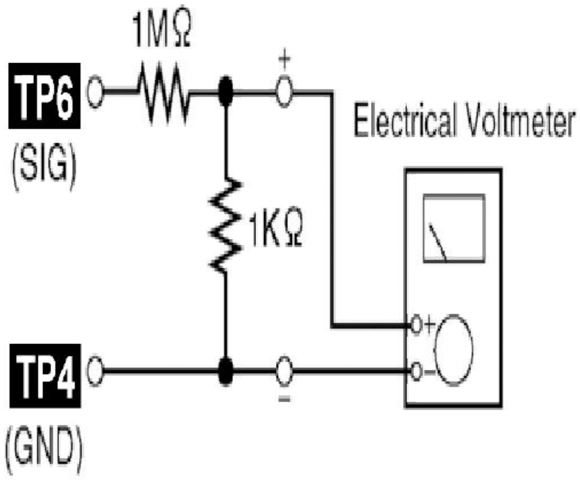

Motor Volume

13.1.5. Bias Voltage Check

1. Connect an electrical voltmeter. (Fig. 9) (Fig. 12)
2. Set the function to “TAPE” position.
3. Insert a normal blank cassette tape (QZZCRA).

4. While pressing and holding down [REC (/)] button, press [TAPE ( )] button to pause the recording mode. (Repeat pressing the buttons till the recording pause mode is activated.)
5. Check that the output level is within the standard range.
   Standard Range: 16 ± 3mV

Fig. 12


1MΩ
TP6
(SIG)
+
Electrical Voltmeter
1KΩ
+
-
TP4
(GND)
-

13.1.6. Bias Frequency Check

1. Connect a digital frequency counter (Fig. 13).
2. Set the function to “TAPE” position.
3. Insert a normal blank cassette tape (QZZCRA) and press “REC” mode on main unit.
4. Check that the output frequency is within the standard range.

Standard Value: 98 ±8 kHz

Fig. 13

14. Voltage Measurement and Waveform Chart

Note:

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.

  Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point because it may differ from actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

14.1. Voltage Measurement

14.1.1. CD Servo P.C.B.

14.1.2. Main P.C.B.

14.1.3. Panel P.C.B.

14.1.4. Power P.C.B.

14.1.5. Transformer P.C.B.

14.1.6. Deck P.C.B.

14.1.7. Deck Mechanism P.C.B.

14.2. Waveform

15. Wiring Connection Diagram

16. Block Diagram

17. Notes of Schematic Diagram

(All schematic diagrams may be modified at any time with the development of new technology)

Note :

S900

Stop/-Demo switch

S901

CD switch

S902

Tape switch

S903

Tuner/Band switch

S904
FF/Tune Up switch

S905
REW/Tune Dwn switch

S906
Power switch

S907
CD Open/Close switch

S908
Bass/Treble switch

S909
Rec switch

S910
Music Port switch

S971
Mode switch

S972
Half switch

S973
CR02 switch

S975
Recinh_F switch

S1000
Tape Eject switch

S7201
Reset switch

VR900
VR Volume Jog

- **The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.**
- **Importance safety notice :**

Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Caution !

IC, LSI and VLSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

- **Cover the parts boxes made of plastics with aluminium foil.**
- **Put a conductive mat on the work table.**
- **Ground the soldering iron.**
- **Do not touch the pins of IC, LSI or VLSI with fingers directly.**

18. Schematic Diagram

18.1. CD Servo Circuit

18.2. Main Circuit and Tuner Extent Circuit

18.3. Panel Circuit

18.4. Deck Circuit, Deck Mechanism Circuit and Tape Eject Circuit

18.5. Power Circuit

18.6. Transformer Circuit, Headphone Circuit and Speaker Terminal Circuit

19. Printed Circuit Board

19.1. CD Servo P.C.B.

19.2. Main P.C.B and Tuner Extent P.C.B.

19.3. Panel P.C.B.

19.4. Deck P.C.B, Deck Mechanism P.C.B and Tape Eject P.C.B.

19.5. Power P.C.B and Speaker Terminal P.C.B.

19.6. Transformer P.C.B and Headphone P.C.B.

20. Illustration of IC’s, Transistors and Diodes

21. Terminal Function of IC's

21.1. IC7001 (MN6627954MA) IC SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER D/A CONVERTER

Pin No.	Mark	I/O	Function
1	A11	O	DRAM address signal O/ P 11
2	A9	O	DRAM address signal O/ P 9
3	A8	O	DRAM address signal O/ P 8
4	A7	O	DRAM address signal O/ P 7
5	A6	O	DRAM address signal O/ P 6
6	A5	O	DRAM address signal O/ P 5
7	A4	O	DRAM address signal O/ P 4
8	NWE	O	Write Enable Signal (DRAM)
9	NCAS	O	DRAM CAS Control Signal
10	NRAS	O	DRAM ARS Control Signal
11	A3	O	DRAM address Signal O/ P 3
12	A2	O	DRAM address Signal O/ P 2
13	A1	O	DRAM address Signal O/ P 1
14	A0	O	DRAM address Signal O/ P 0
15	A10	O	DRAM address Signal O/ P 10
16	BA0	N.C.	Motor O/P (0);/Serial I/P
17	BA1	N.C.	Motor O/P (1);/Serial I/P
18	PRAMVSS33	-	GND (DRAM)
19	PRAMVDD15	-	Power Supply Voltage (DRAM)
20	PRAMVDD33	-	Power Supply Voltage (+ 1.6V)
21	SPOUT	O	Spindle Drive O/P
22	PC	I/O	Spindle motor drive O/P signal serial data/ Monitoring I/P
23	TRVP	O	Traverse Drive O/P (+ve)
24	TRP	O	Tracking Drive O/P (+ve)
25	FOP	O	Focusing Drive O/P (+ve)
26	DVSS1	I	GND

Pin No.	Mark	I/O	Function
27	IOVDD2	I	Digital Power Supply Voltage 2 (I/O)
28	DVDD1	-	Digital Power Supply Voltage 1 (Built-In)
29	SRVMON0	N.C.	Servo Monitor (0) O/P
30	SRVMON1	N.C.	Servo Monitor (1) O/P
31	AVSS2	-	GND
32	OSCIN	I	Oscillating Input
33	CTRCRS	N.C.	Tracking Cross Comparator
34	VREF	-	+Vref Supply Voltage
35	E	I	Tracking Input Signal 1
36	F	I	Tracking Input Signal 2
37	D	I	Focusing Input Signal 4
38	B	I	Focusing Input Signal 2
39	C	I	Focusing Input Signal 3
40	A	I	Focusing Input Signal 1
41	PD	I	APC Amp I/P
42	LD	O	Laser Drive Current O/P
43	CENV	I	Detection Capacitance Connection terminal
44	RFENV	O	RF Envelope O/P
45	RFOUT	O	RF Summing Amp O/P
46	RFIN	I	SGC I/P
47	AVDD2	I	Analog Power Supply voltage 2 (For DSL/PLL)
48	ARFDC	O	AGC Capacitive Connection Terminal
49	ARFOUT	O	AGC Output
50	ARFFB	I	ARF Feedback Signal I/P
51	ARFIN	I	Audio RF Signal I/P
52	DSLF	I	Loop Filter Terminal (For DSL)
53	IREF	I	Reference I/P
54	PLLF	I	PLL Loop Filter Terminal (Phase Compare)
55	PLLF0	O	PLL Loop Filter Terminal (Speed Compare)
56	OUTL\	O	Audio O/P (LCH)
57	AVSS1	I	GND
58	AVDD1	I	Analog Power Supply Voltage 1
59	OUTR	O	Audio O/P (RCH)
60	DVSS3	I	GND3 (Digital Circuit)

Pin No.	Mark	I/O	Function
61	NSRVMONON	I	Servo Motor O/P Enabling
62	EXT0	N.C.	Expansion O/P Port 0
63	EXT1	N.C.	Expansion O/P Port 1
64	EXT2	N.C.	Expansion O/P Port 2
65	FLAG	N.C.	Flag Signal O/P
66	TX	N.C.	Digital Audio Interface O/P signal
67	MCLK	I	Micro-Computer Command Clock I/P
68	MDATA	I	Micro-Computer Data I/P
69	MLD	I	Micro-Computer Load I/P
70	STAT	O	Status Signal O/P
71	BLKCK	O	Subcode Blk Clock
72	NRST	O	LSI Reset Signal
73	DQSYTXT	N.C.	Pack Signal O/P for CD-Text data
74	SMCK	N.C.	Micro-Computer Clock O/P
75	PMCK	N.C.	IOCNT Serial data O/P (Synchronous O/P)
76	DVDD2	-	Digital Power Supply Voltage 2 (+1.5V)
77	IOVDD1	-	Digital Power Supply Voltage 1 (For I/O)
78	DVSS2	-	GND2 (For Digital Circuit)
79	NTEST2	I	Test Mode Setting (ON: H)
80	X2	O	Crystal Oscillating Circuit O/P
81	X1	I	Crystal Oscillating Circuit I/P
82	NTEST	I	Test Mode Setting I/P (ON:H)
83	D2	I/O	Data Sigmal O/P 2
84	D1	I/O	Data Signal O/P 1
85	D0	I/O	Data Signal O/P 0
86	D3	I/O	Data Signal O/P 3
87	D4	I/O	Data Signal O/P 4
88	D5	I/O	Data Signal O/P 5
89	D6	I/O	Data Signal O/P 6
90	D7	I/O	Data Signal O/P 7
91	D15	I/O	Data Signal O/P 15
92	D14	I/O	Data Signal O/P 14

Pin No.	Mark	I/O	Function
93	DRVDD	I	I/O Power Supply Voltage (DRAM)
94	D13	I/O	Data Signal O/P 13
95	D12	I/O	Data Signal O/P 12
96	D11	I/O	Data Signal O/P 11
97	D10	I/O	Data Signal O/P 10
98	D9	I/O	Data Signal O/P 9
99	D8	I/O	Data Signal O/P 8
100	SDRCK	O	Clock Signal O/P

21.2. IC7002 (BA5948FPE2) IC 4CH Drive

Pin No.	Mark	I/O	Function
1	IN2	I	Motor Driver 92 Input
2	PC2	I	Turntable Motor Drive Signal (“L”:ON)
3	IN1	I	Motor Drive (1) Input
4	PC1	-	Traverse Motor Drive Signal (“L”: ON)
5-8	N.C.	-	No Connection
9	PGND1	-	Ground Connection (1) for Drive
10	PVCC1	I	Power Supply (1) for Drive
11	D1-	O	Motor Drive (1) reverse - action output
12	D1+	O	Motor Drive (1) forward - action output
13	D2-	O	Motor Drive (2) reverse - action output
14	D2+	O	Motor Drive (2) forward - action output
15	D3-	O	Motor Drive (3) reverse - action output
16	D3+	O	Motor Drive (3) forward - action output
17	D4-	O	Motor Drive (4) reverse - action output
18	D4+	O	Motor Drive (4) forward - action output
19	PVCC2	-	Power Supply (2) for Driver

Pin No.	Mark	I/O	Function
20	PGND2	-	Ground Connection (2) for Driver
21-24	N.C.	O	No Connection
25	VCC	I	Power Supply terminal
26	VREF	I	Reference Voltage Input
27	IN4	I	Motor Driver (4) Input
28	IN3	I	Motor Driver (3) Input

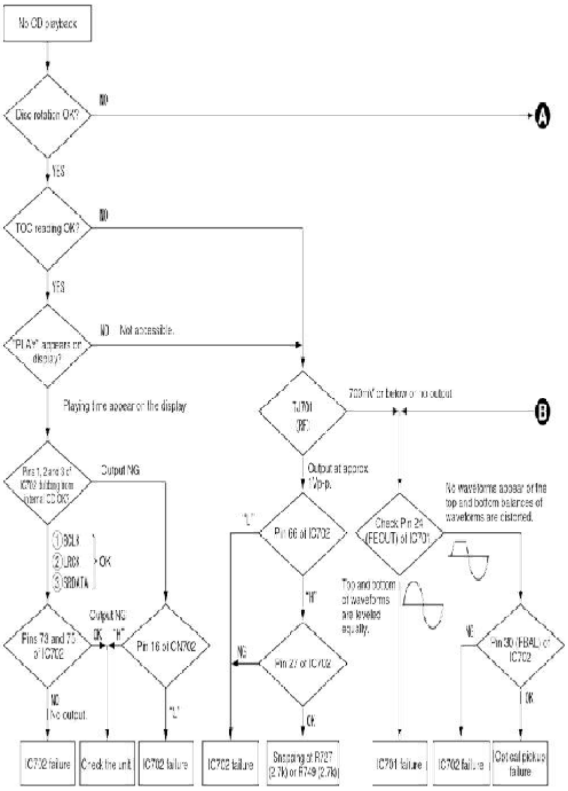
21.3. IC803 (MN101C49GHD) MICROPROCESSOR

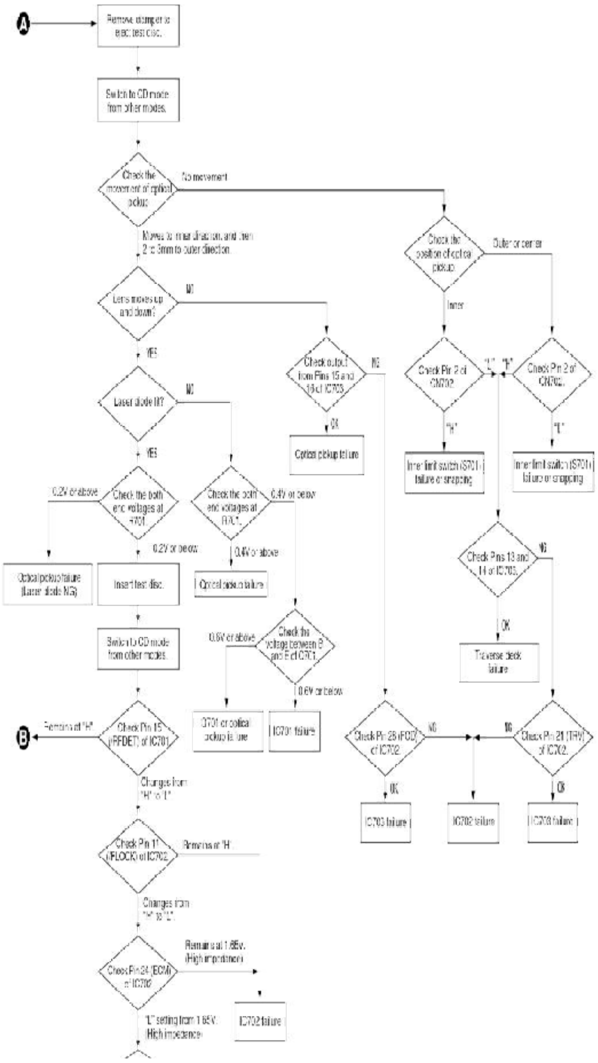
Pin No.	Mark	I/O	Function
1	VREF-	-	A/D Converter Reference GND
2	KEY 1	I	Key 1 Input
3	KEY 2	I	Key 2 Input
4	AN6 (MK_IN1)	I	Mech Condition Input1 (Mode and TPS)
5	AN7 (MK_IN2)	I	Mech Condition Input2 (Half and RECINF)
6	PWRDET	I	Power Detect
7	REGION	I	Destination Setting
8	VOL_DET1	I	Volume Lever Left
9	VOL_DET2	I	Volume Lever Right
10	VREF +	-	A/D Converter Reference Volt
11	VDD	-	Power Input Pin
12	OSC2 (8MHZ)	O	Main Oscillator Output
13	OSC1 (8MHZ)	I	Main Oscillator Input
14	VSS	-	GND
15	XI (32KHZ)	I	Suboscillator Input
16	XO (32KHZ)	O	Suboscillator Output
17	MMOD (GND)	-	Memory Mode Selection
18	N.C.	-	No Connection
19	RDS_DATA	I/O	RDS IC CTRL
20	RDS_CLK	O	RDS CLK IN
21	CD_MDATA	O	CD LSI Command Data
22	CD_STAT	I	CD Status Input
23	CD_MCLK	O	CD LSI Command Clock
24	N.C.	-	No Connection
25	PCONT1	O	Power Control Output1 (PWR SPLY, Active High)

Pin No.	Mark	I/O	Function
26	RMT	I	Remocon Input
27	HALT	I	AC Failure Detect Signal
28	CD_OPEN / _SW	I	CD Open Switch (L: Open, H: Close)
29	REST_SW	I	CD Tranverse Limit SW
30	BLKCK	I	CD Subcode Block Clock Input
31	N.C.	-	No Connection
32	N.C.	-	No Connection
33	NRST	I	Micom Reset (L: Reset)
34	N.C.	-	No Connection
35	CD_RST	O	CD Reset Output
36	CD_MLD	O	CD LSI Command Load
37	N.C.	-	No Connection
38	N.C.	-	No Connection
39	N.C.	-	No Connection
40	FL_CS	O	FL Strobe Output
41	N.C.	-	No Connection
42	FL_DATA	O	FL Data Output
43	N.C.	-	No Connection
44	FL_CLK	O	FL Clock Output
45	SDA	I/O	IIC Data Line For Tuner
46	N.C.	-	No Connection
47	CL	O	IIC Clock Signal For Tuner
48	N.C.	-	No Connection
49	PCONT2	O	Power Control Output2 (PWR AMP, active H)
50	DEMO	I	Demo Mode Setting (H: OFF, L: ON)
51	N.C.	-	No Connection
52	HP_SW	-	No Connection
53	MUTE A	O	Audio Mute O/P (L: Mute On)
54	N.C.	-	No Connection
55	N.C.	-	No Connection
56	ASP_CLK	O	ASP CLK
57	ASP_DAT	O	ASP Data
58	N.C.	-	No Connection
59	N.C.	-	No Connection
60	N.C.	-	No Connection
61	E_DATA	I/O	Eeprom Data In/Out
62	E_CLK	O	Eeprom Clock Output
63	E_CS	O	Eeprom CS Output
64	N.C.	-	No Connection

Pin No.	Mark	I/O	Function
65	TUNED	I/O	Tuner Tuned Signal
66	STEREO	I/O	Tuner Stereo Signal
67	N.C.	-	No Connection
68	N.C.	-	No Connection
69	N.C.	-	No Connection
70	MOTOR_H	O	Deck Motor Control Out (H: ON)
71	PL_H	O	Deck Plunger Control Out (H: On)
72	N.C.	-	No Connection
73	N.C.	-	No Connection
74	TAPE_EJECT	O	Tape Eject SW I/P (L: SW On)
75	PHOTO	I	Deck Photo SW Input
76	REC_H	O	Deck Rec Control Output (Active High)
77	N.C.	-	No Connection
78	DMT	O	Deck Mute Output (L: Mute On)
79	WMA	I	Model Select (L)
80	N.C.	-	No Connection
81	N.C.	-	No Connection
82	N.C.	-	No Connection
83	N.C.	-	No Connection
84	N.C.	-	No Connection
85	N.C.	-	No Connection
86	N.C.	-	No Connection
87	N.C.	-	No Connection
88	N.C.	-	No Connection
89	N.C.	-	No Connection
90	MP1	-	No Connection
91	MP2	-	No Connection
92	CRTIMER	I/O	CR Timer
93	N.C.	-	No Connection
94	S/W RST	-	Switch Reset
95	VREF -	-	D/A Converter Reference GND
96	VOL_JOG1	I	Jog Input 1
97	VOL_JOG2	I	Jog Input 2
98	CLOSE_L	O	CD Tray Close Control (Active L)
99	OPEN_H	O	CD Tray Open Control (Active H)
100	VREF +	-	D/A Converter Reference Voltage

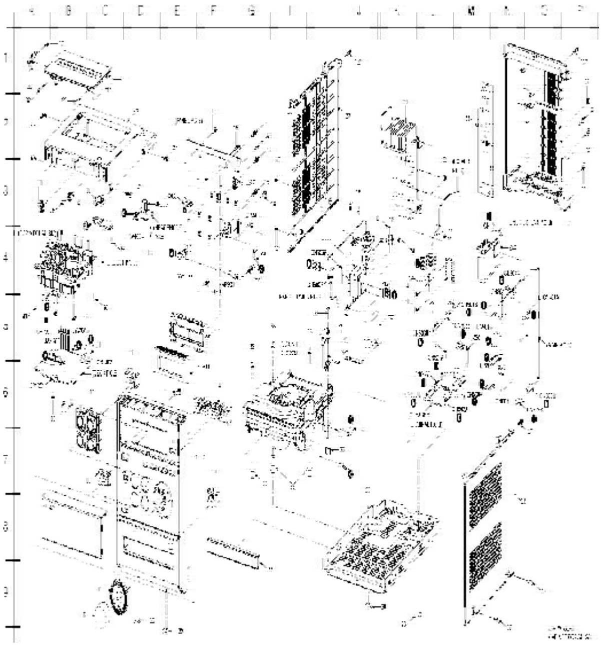
22. Troubleshooting Flowchart (CD Section Circuit)


No CD playback
Disc rotation OK?
NO
A
YES
TOC reading OK?
NO
YES
"PLAY" appears on display?
NO Not accessible.
Playing time appear on the display
TJ701 (RF)
700mV or below or no output
B
Pins 1, 2 and 3 of IC702 dubbing from internal CD OK?
Output NG
Output at approx. 1Vp-p.
No waveforms appear or the top and bottom balances of waveforms are distorted.
"L"
Pin 66 of IC702
Check Pin 24 (FEOUT) of IC701
① BCLK
② LRCK
③ SRDATA
OK
Top and bottom of waveforms are leveled equally.
"H"
Output NG
OK
"H"
Pins 73 and 75 of IC702
Pin 16 of CN702
NG
Pin 27 of IC702
NG
Pin 30 (FBAL) of IC702
NO
No output.
"L"
OK
OK
IC702 failure
Check the unit
IC702 failure
IC702 failure
Snapping at R727 (2.7k) or R749 (2.7k)
IC701 failure
IC702 failure
Optical pickup failure

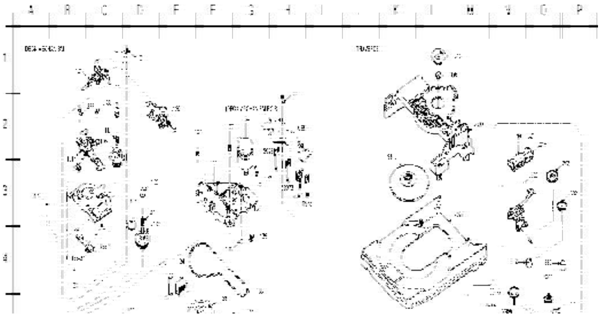

A
Remove clamper to eject test disc.
Switch to CD mode from other modes.
Check the movement of optical pickup.
No movement
Moves to inner direction, and then 2 to 3mm to outer direction.
Lens moves up and down?
NO
YES
Laser diode lit?
NO
YES
0.2V or above
Check the both end voltages at R701.
0.2V or below
Optical pickup failure (Laser diode NG)
Insert test disc.
Switch to CD mode from other modes.
Check the both end voltages at R701.
0.4V or below
0.4V or above
Optical pickup failure
Check the voltage between B and E of Q701.
0.6V or above
0.6V or below
Q701 or optical pickup failure
IC701 failure
Check output from Pins 15 and 16 of IC703.
NG
OK
Optical pickup failure
Check the position of optical pickup.
Outer or center
Inner
Check Pin 2 of CN702.
"L"
"H"
Check Pin 2 of CN702.
"H"
"L"
Inner limit switch (S701) failure or snapping
Inner limit switch (S701) failure or snapping
Check Pins 13 and 14 of IC703.
NG
OK
Traverse deck failure
Check Pin 28 (FOD) of IC702.
NG
OK
IC703 failure
IC702 failure
Check Pin 21 (TRV) of IC702.
NG
OK
IC703 failure
B
Remains at "H"
Check Pin 15 (RFDET) of IC701.
Changes from "H" to "L"
Check Pin 11 (FLOCK) of IC702.
Remains at "H"
Changes from "H" to "L".
Check Pin 24 (ECM) of IC702.
Remains at 1.65V. (High impedance)
IC702 failure
"L" setting from 1.65V. (High impedance)

23. Exploded Views

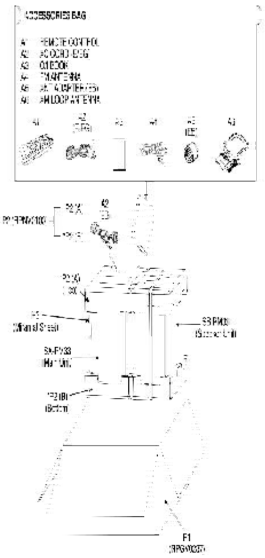
23.1. Cabinet Parts Location


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9

23.2. Deck Mechanism (RAA4402-1S) & Traverse Part Location


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
TRAVERSE

23.3. Packaging


ACCESSORIES BAG
A1 REMOTE CONTROL
A2 AC CORD (EB)
A3 O/I BOOK
A4 FM ANTENNA
A5 ANT ADAPTER (EB)
A6 AM LOOP ANTENNA
A1
A2
A3
A4
A5
A6
A2
SB-PM03
(Speaker Unit)
SA-PM33
(Main Unit)
P2 (B)
(Bottom)
F1

24. Replacement Parts List

Notes:

- **Important safety notice:**
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardent (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.
  When replacing any of these components, be sure to use only manufacturer’s specified parts shown in the parts list.
- **The parenthesized indications in the Remarks columns specify the areas or colour. (Refer to the cover page for area or colour)**
  Parts without these indications can be used for all areas.
- **Warning: This product uses a laser diode. Refer to “Precaution of Laser Diode”.**
  ACTUNG:
  Die Lasereinheit nicht zerlegen.
  Die Lasereinheit darf nur gegen eine vom Hertsteller spezifizierte Einheit ausgetauscht werden.
- **Capacitor values are in microfarads (F) unless specified otherwise, P= Pico-farads (pF), F= Farads.**
- **Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).**
- **The marking (RTL) indicates that the Retention Time is limited for this items. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention**

period of a availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

- [M] Indicates in the Remarks columns indicates parts supplied by PAVCSG.
- Reference for O/I book languages are as follows:

Ar:	Arabic	Du:	Dutch	It:	Italian	Sp:	Spanish
Cf:	Canadian French	En:	English	Ko:	Korean	Sw:	Swedish
Cz:	Czech	Fr:	French	Po:	Polish	Co:	Traditional Chinese
Da:	Danish	Ge:	German	Ru:	Russian	Cn:	Simplified Chinese
Pe:	Persian	Ur:	Ukraine				

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	REEV0112	19P FFC (DECK-MAIN)	[M]
2	REEV0113	15P FFC	[M]
3	REEV0114	17P FFC (CD-MAIN)	[M]
4	REXV0062	WIRE 8P (POWER-TRAN)	[M]EB EG
5	RFKGAPM33EBS	FRONT PANEL ASS'Y	[M]
6	RGKV0149-S	VOLUME ORNAMENT	[M]
7	RGLV0061-Q	LIGHTING TIP	[M]
8	RFKHAPM33EBS	REAR CABINET ASS'Y	[M]EB
8	RKSV0035-H	REAR CABINET	[M]EG E
9	RGU2280-S	CASS EJECT BUTTON	[M]
10	RGUV0134C-S	FUNCTION BUTTON	[M]
11	RGUV0156-S	POWER BUTTON	[M]
12	RGUV0157-S	STOP BUTTON	[M]
13	RGUV0158-S	CD EJECT BUTTON	[M]
14	RGUV0159-S	CONTROL BUTTON	[M]
15	RGWV0039-S	VOLUME KNOB	[M]
16	RHD26046-L	SCREW	[M]
17	RHD30083-1	CAM. GEAR SCREW	[M]
18	RHDV30005	SCREW	[M]
19	RHDV30007	SCREW	[M]
20	RHGV0008	LEG CUSHION	[M]
21	RKF0688-S	CASS HOLDER/LID	[M]
22	RKFV0059-S	CD LID	[M]
23	RKMV0064-H	SIDE PANEL (L)	[M]
24	RKMV0065-H	SIDE PANEL (R)	[M]
25	RKMV0066-S	TOP CABINET	[M]
26	RMAV0001	MAIN PCB SUPPORT	[M]
27	RMB0448-J	LOCK ROD SPRING	[M]
28	RMBV0046	CASS LID OPEN SPRING	[M]
29	RMKV0051	BOTTOM CHASSIS	[M]
30	RMM0163-1	CASSETTE LOCK ROD	[M]
31	RSCV0073	REAR SHIELD	[M]
32	RUS757ZAA	CASS HALF SPRING	[M]
33	RXGX0002	DAMPER GEAR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
34	RXXV0040	HEAT SINK UNIT	[M]
35	SHE187-4J	POWER PCB SUPPORT	[M]
37	XTB3+10JFJ	SCREW	[M]
38	XTB3+20JFJK	SCREW	[M]
39	XTB3+8FFJ	SCREW	[M]
40	XTV3+10GFJ-M	SCREW	[M]
41	XTV3+8FFJ	SCREW	[M]
		CASSETTE DECK	
101	RED0067-2	R/P HEAD BLOCK UNIT	[M]
103	RDG0300	REEL BASE GEAR	[M]
104	RDG0301	WINDING RELAY GEAR	[M]
105	RDK0026-4	MAIN GEAR	[M]
107	RDV0033-4	WINDING BELT	[M]
108	RDV0064-1	CAPSTAN BELT	[M]
110	RMB0312	TRIGGER LEVER SPRING	[M]
111	RMB0400	REEL SPRING	[M]
112	RMB0403	HEAB PANEL SPRING	[M]
113	RMB0404	BRAKE ROD SPRING	[M]
114	RMB0406-5	FR LEVER SPRING	[M]
115	RMB0408	THRUST SPRING	[M]
116	RML0370-4	TRIGGER LEVER	[M]
117	RML0371	FR LEVER	[M]
118	RML0372-2	WINDING LEVER	[M]
119	RML0374-2	EJECT LEVER	[M]
120	RMM0131-1	BRAKE ROD	[M]
121	RMM0133-1	EJECT ROD	[M]
122	RMQ0519	REEL HUB	[M]
123	RMS0398-1	MOVING CORE	[M]
124	RXQ0470-2	PLUNGER	[M]
125	RMC0061	PACK SPRING	[M]
126	RXF0061-1	FLYWHEEL F ASS'Y	[M]
128	RXG0040	FF RELAY GEAR ASS'Y	[M]
129	RMK0283A-2	SUB-CHASSIS	[M]
130	RXL0124	PINCH ROLLER F ASS'Y	[M]
130-1	RMB0401	PINCH ARM SPRING F	[M]
132	RXL0126	WINDING ARM ASS'Y	[M]
133	RXQ0412-3	HEAD PANEL ASS'Y	[M]
133-1	RMB0405-1	FR ROD SPRING	[M]
133-2	RMM0132-1	FR ROD	[M]
134	REM0120	CAP MOTOR ASS'Y	[M]
135	RHD26022-1	MOTOR SCREW	[M]
136	XTW2+5LFJ	HEAD BLOCK UNIT SCRE	[M]
137	XTW26+10SFJ	SUB-CHASSIS SCREW	[M]
138	XYC2+JF17FJ	PCB EARTH SCREW	[M]
139	RFKJSTR280PP	CHASSIS ASS'Y	[M]
		TRAVERSE DECK	
301	RAE0157Z-V	TRAVERSE W/O PCB	[M]
302	RDG0455	TRAVERSE GEAR (A)	[M]
303	RDG0456	TRAVERSE GEAR (B)	[M]
304	RFKNCT100	TRAVERSE BASE ASS'Y	[M]
304-1	RDG0457	LOAD GEAR (A)	[M]
304-10	RXQ0632	TRAVERSE MOTOR UNIT	[M]
304-2	RDG0458	LOAD GEAR (B)	[M]

004-2	RDC0403	LOAD GEAR (D)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
304-3	RDG0459	LOAD GEAR (C)	[M]
304-4	RME0369	PRESS SPRING	[M]
304-5	RME0291	LOCK SPRING	[M]
304-6	RML0551	TRIGGER LEVER	[M]
304-7	RML0552	LOCK LEVER	[M]
304-8	RMM0219	STOPPER	[M]
304-9	XQN17+C28FJ	SCREW	[M]
305	RDG0460-2	CAM GEAR	[M]
306	RDG0461	DRIVE GEAR	[M]
307	RGQ0254-K2	TRAY	[M]
308	RHM0001	MAGNET	[M]
309	RMB0603	FLOATING SPRING	[M]
310	RME0288	CENTERING SPRING	[M]
311	RFKNXED50-S	CLAMPER HOLDER ASS'Y	[M]
312	RMG0510-K	FLOATING RUBBER (A)	[M]
313	RMG0511-K	FLOATING RUBBER (B)	[M]
314	RMK0422-6	MECHA CHASSIS	[M]
315	RMM0218	TRAVERSE DRIVE RACK	[M]
316	RHD30083-1	CAM. GEAR SCREW	[M]
317	RMR1223-K1	CLAMP PLATE	[M]
318	RMR1242-X2	FIXTURE	[M]
319	XTN2+6GFJ	SCREW	[M]
320	RXQ0999	OPU UNIT	[M]
321	SNSD38-1	SCREW	[M]
		PRINTED CIRCUIT BOARD	
	REPV0092B	DECK P.C.B. / TAPE EJECT P.C.B.	[M] / (RTL)
	REPV0089A	MAIN P.C.B. / PANEL P.C.B. / HEADPHONE P.C.B.	[M] / (RTL)
	REPV0090A	TUNER EXTENT P.C.B. / TRANSFORMER P.C.B. / POWER P.C.B. / SPEAKER TERMINAL P.C.B.	[M] / (RTL)
	REPX0321H	DECK MECHANISM P.C.B.	[M] / (RTL)
	REPV0082A	CD SERVO P.C.B.	[M] / (RTL)
		INTEGRATED CIRCUITS	
IC300	AN17831A	IC POWER AMP	[M]
IC700	C0ABBB000297	IC DUAL OP-AMP	[M]
IC800	C1BB00000732	IC ASP	[M]
IC801	C1BB00000987	IC RDS	[M]
IC802	C0DBZGC00067	IC 3.3V REGULATOR	[M]
IC803	MN101C49GHD	IC MICROPROCESSOR	[M]
IC900	C0HBB0000057	IC FL DRIVER	[M]
IC971	CNB13030R2AU	IC PHOTO INTERRUPTOR	[M]
IC1000	C1AA00000612	IC ANALOG SWITCH	[M]
IC1001	AN7326K	IC P/B REC AMP	[M]
IC7001	MN6627954MA	IC SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER D/A CONVERTER	[M]
IC7002	BA5948FPE2	IC 4 CH DRIVE	[M]
		TRANSISTORS	
Q221	B1ABGC000001	TRANSISTOR	[M]
Q222	B1ABGC000001	TRANSISTOR	[M]
Q421	B1ABGC000005	TRANSISTOR	[M]
Q422	B1ABGC000005	TRANSISTOR	[M]
Q500	B1GCCFGA0006	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q501	**B1AACF000063**	**TRANSISTOR**	**[M]**
Q503	**B1BCCG000002**	**TRANSISTOR**	**[M]**
Q504	**B1AACF000063**	**TRANSISTOR**	**[M]**
Q505	**B1AAJC000019**	**TRANSISTOR**	**[M]**
Q507	**B1AAJC000019**	**TRANSISTOR**	**[M]**
Q530	**2SD0592ARA**	**TRANSISTOR**	**[M]**
Q600	**B1AACF000063**	**TRANSISTOR**	**[M]**
Q601	**2SC3940ARA**	**TRANSISTOR**	**[M]**
Q602	**KRC102MTA**	**TRANSISTOR**	**[M]**
Q603	**2SB0621AHA**	**TRANSISTOR**	**[M]**
Q750	**B1GDCFGG0026**	**TRANSISTOR**	**[M]**
Q751	**B1GBCFJJ0044**	**TRANSISTOR**	**[M]**
Q801	**B1GBCFGG0030**	**TRANSISTOR**	**[M]**
Q802	**B1GBCFGG0030**	**TRANSISTOR**	**[M]**
Q803	**B1GBCFJJ0044**	**TRANSISTOR**	**[M]**
Q804	**B1GBCFNN0038**	**TRANSISTOR**	**[M]**
Q807	**B1GBCFGJ0016**	**TRANSISTOR**	**[M]**
Q808	**B1GBCFGJ0016**	**TRANSISTOR**	**[M]**
Q1101	**B1ABGC000005**	**TRANSISTOR**	**[M]**
Q1201	**B1ABGC000005**	**TRANSISTOR**	**[M]**
Q1302	**B1GDCFJJ0002**	**TRANSISTOR**	**[M]**
Q1303	**B1GBCFGH0001**	**TRANSISTOR**	**[M]**
Q1304	**B1GDCFGH0002**	**TRANSISTOR**	**[M]**
Q1309	**B1AAGC000006**	**TRANSISTOR**	**[M]**
Q1310	**B1AAGC000006**	**TRANSISTOR**	**[M]**
Q1312	**B1ABCF000011**	**TRANSISTOR**	**[M]**
Q1314	**B1GDCFGH0002**	**TRANSISTOR**	**[M]**
Q1315	**B1ACKD000006**	**TRANSISTOR**	**[M]**
Q1316	**2SD09650RA**	**TRANSISTOR**	**[M]**
Q1317	**B1ABGC000005**	**TRANSISTOR**	**[M]**
Q7601	**B1ADCF000001**	**TRANSISTOR**	**[M]**
		DIODES	
D380	**B0AACK000004**	**DIODE**	**[M]**
D382	**B0EAKM000117**	**DIODE**	**[M]**
D383	**B0EAKM000117**	**DIODE**	**[M]**
D385	**B0BA3R900006**	**DIODE**	**[M]**
D386	**B0BA3R900006**	**DIODE**	**[M]**
D501	**B0EAMM000038**	**DIODE**	**[M]**
D502	**B0EAMM000038**	**DIODE**	**[M]**
D504	**B0EAMM000038**	**DIODE**	**[M]**
D505	**B0EAMM000038**	**DIODE**	**[M]**
D506	**B0BA8R200005**	**DIODE**	**[M]**
D508	**B0BA5R600016**	**DIODE**	**[M]**
D512	**B0BA9R600002**	**DIODE**	**[M]**
D525	**B0EAKM000117**	**DIODE**	**[M]**
D526	**B0EAKM000117**	**DIODE**	**[M]**
D527	**B0EAKM000117**	**DIODE**	**[M]**
D600	**B0AACK000004**	**DIODE**	**[M]**
D602	**B0EAKM000117**	**DIODE**	**[M]**
D603	**B0EAKM000117**	**DIODE**	**[M]**
D604	**B0EAKM000117**	**DIODE**	**[M]**
D605	**B0EAKM000117**	**DIODE**	**[M]**
D606	**B0EAKM000117**	**DIODE**	**[M]**
D607	**B0BA6R800007**	**DIODE**	**[M]**
D608	**B0AACK000004**	**DIODE**	**[M]**

[illegible]	[illegible]	[illegible]	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D609	B0EAKM000117	DIODE	[M]
D610	B0BA02600017	DIODE	[M]
D611	B0EAKM000122	DIODE	[M]
D750	B0ACCK000005	DIODE	[M]
D751	B0ACCK000005	DIODE	[M]
D802	B0ACCK000005	DIODE	[M]
D803	B0ACCE000003	DIODE	[M]
D804	B0ACCE000003	DIODE	[M]
D805	B0ACCE000003	DIODE	[M]
D806	B0ACCE000003	DIODE	[M]
D807	B0ACCK000005	DIODE	[M]
D900	B0BC5R600003	DIODE	[M]
D906	B3AAA0000489	DIODE	[M]
D971	MA2C16500E	DIODE	[M]
D1301	B0ACCK000005	DIODE	[M]
D7650	MAZ80560ML	DIODE	[M]
		VARIABLE RESISTORS	
VR900	EVEJ1CF3024B	VOLUME JOG	[M]
		SWITCHES	
S900	EVQ21405RJ	SW STOP/-DEMO	[M]
S901	EVQ21405RJ	SW CD	[M]
S902	EVQ21405RJ	SW TAPE	[M]
S903	EVQ21405RJ	SW TUNER/BAND	[M]
S904	EVQ21405RJ	SW FF/TUNE UP	[M]
S905	EVQ21405RJ	SW REW/TUNE DWN	[M]
S906	EVQ21405RJ	SW POWER	[M]
S907	EVQ21405RJ	SW CD OPEN/CLOSE	[M]
S908	EVQ21405RJ	SW BASS/TREBLE	[M]
S909	EVQ21405RJ	SW REC	[M]
S910	EVQ21405RJ	SW MUSIC PORT	[M]
S971	K0J1BB000017	SW MODE	[M]
S972	K0J1BB000021	SW HALF	[M]
S973	K0J1BB000021	SW CR02	[M]
S975	K0J1BB000021	SW RECINH_F	[M]
S1000	EVQ21405RJ	SW TAPE EJECT	[M]
S7201	RSH1A048-A	SW RESET	[M]
		CONNECTORS	
CN10	K1KB10B00042	10P CONNECTOR	[M]
CN401A	K1KA10AA0031	10P CONNECTOR	[M]
CN501A	K1KB04A00035	4P CONNECTOR	[M]
CN501B	K1KA04BA0125	4P CONNECTOR	[M]
CN503A	K1KA09AA0031	9P CONNECTOR	[M]
CN503B	K1KB09B00013	9P CONNECTOR	[M]
CN504A	K1MP04A00003	4P CONNECTOR	[M]
CN505B	K1KA08AA0319	8P CONNECTOR	[M]
CN508A	K1KA13AA0031	13P CONNECTOR	[M]
CN508B	K1KB13B00017	13P CONNECTOR	[M]
CN801	K1MN17AA0004	17P CONNECTOR	[M]
CN803A	K1KA09AA0031	9P CONNECTOR	[M]
CN803B	K1KB09B00013	9P CONNECTOR	[M]
CN804	K1MN19A00027	19P CONNECTOR	[M]

CN304	[illegible]	15P CONNECTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CN808A	**K1KA13AA0031**	**13P CONNECTOR**	**[M]**
CN808B	**K1KB13B00017**	**13P CONNECTOR**	**[M]**
CN900B	**K1MP05A00004**	**5P CONNECTOR**	**[M]**
CN901A	**K1MN15A00049**	**15P FFC CONNECTOR**	**[M]**
CN901B	**K1MN15A00049**	**15P FFC CONNECTOR**	**[M]**
CN1303	**K1MN19BA0005**	**19P CONNECTOR**	**[M]**
CN7001	**K1MN16B00154**	**16P CONNECTOR**	**[M]**
CN7002	**K1MN17B00032**	**17P CONNECTOR**	**[M]**
CP800	**REXX0230-2**	**2P CONNECTOR (MAIN TO CR120)**	**[M]**
CP1301	**K1MY05AA0043**	**5P CONNECTOR**	**[M]**
CP1902	**K1KA09BA0153**	**9P CONNECTOR**	**[M]**
CS971	**RJU071H09M1**	**9P CONNECTOR**	**[M]**
		COILS & TRANSFORMERS	
L203	**J0JBC0000019**	**CHIP INDUCTOR**	**[M]**
L204	**G0C3R3JA0027**	**COIL**	**[M]**
L300	**G0AR76Y00002**	**CHOKE COIL**	**[M]**
L301	**G0AR76Y00002**	**CHOKE COIL**	**[M]**
L302	**G0AR76Y00002**	**CHOKE COIL**	**[M]**
L303	**G0AR76Y00002**	**CHOKE COIL**	**[M]**
L600	**G0B371HA0005**	**LINE FILTER**	**[M]**
L801	**J0JKB0000020**	**EMI BEAD CORE**	**[M]**
L802	**J0JKB0000020**	**EMI BEAD CORE**	**[M]**
L803	**J0JKB0000020**	**EMI BEAD CORE**	**[M]**
L804	**G0C3R3JA0027**	**COIL**	**[M]**
L805	**G0C3R3JA0027**	**COIL**	**[M]**
L806	**G0A200D00002**	**RF CHOKE COIL**	**[M]**
L807	**G0A200D00002**	**RF CHOKE COIL**	**[M]**
L810	**G0C101JA0027**	**COIL**	**[M]**
L811	**G0C101JA0027**	**COIL**	**[M]**
L812	**J0JKB0000020**	**EMI BEAD CORE**	**[M]**
L901	**G0C3R3JA0027**	**COIL**	**[M]**
L1301	**G2ZZ00000024**	**BIAS OCS COIL**	**[M]**
L1302	**G0C470JA0052**	**RF CHOKE COIL**	**[M]**
T600	**RTP1H3E002**	**BACK-UP TRANSFORMER**	**[M]**
T601	**G4CYAYY00063**	**POWER TRANSFORMER**	**[M]**
		COMPONENT COMBINATIONS	
Z401	**ENG07811QF**	**TUNER PACK**	**[M]**
Z600	**ERZV10V511CS**	**ZENER**	**[M]**
Z901	**B3RAD0000125**	**REMOTE SENSOR**	**[M]**
		RELAY	
RL600	**K6B1ADA00011**	**RELAY**	**[M]**
		OSCILLATORS	
X801	**H4Z8004AA001**	**CERAMIC RESONATOR**	**[M]**
X802	**H0A327200100**	**CRYSTAL**	**[M]**

Ref. No.	Part No.	Part Name & Description	Remarks
X803	H0H433400002	CRYSTAL	[M]
X7201	H2B169500005	CRYSTAL	[M]
		DISPLAY TUBE	
FL900	A2BB00000157	FL DISPLAY	[M]
		FUSE	
F1	K5D631BLA012	FUSE	[M]
		FUSE HOLDERS	
FC600	EYF52BCY	FUSE CLIP	[M]
FC601	EYF52BCY	FUSE CLIP	[M]
		FUSE PROTECTOR	
FP352	K5G502A00039	FUSE PROTECTOR	[M]
		JACKS	
JK303	K2HC1YYA0003	JK AUX	[M]
JK501	K4BC04B00086	JK RED/BLACK SPEAKER	[M]
JK600	K2AA2B000015	JK AC INLET	[M]
JK900	K2HC103A0024	JK HP	[M]
		EARTH TERMINAL	
ZJ01	SNE1004-3	EARTH TERMINAL	[M]
		WIRES	
WH504	RMR0313	CABLE HOLDER	[M]
WH504	RWJ1104150QX	4P WIRE	[M]
WH505	RMNV0062	FL HOLDER	[M]
WH505A	K1YF08000003	8P WIRE HOLDER	[M]
WH900	RMR0314	CABLE HOLDER	[M]
WH900	RWJ1105205QX	5P WIRE (PANEL-TRAN)	[M]
JW308A	RWJ0102190SS	2P WIRE (CASS OPEN-DECK)	[M]
JW308B	RWJ0102190SS	2P WIRE (CASS OPEN-DECK)	[M]
JW1903	RWJ0102050KR	2P WIRE (MOTOR WIRE)	[M]
		PACKING MATERIALS	
P1	RPGV0287	PACKING CASE	[M]
P2	RPNV0100	POLYFOAM	[M]
P3	RPHV0001-1	MIRAMAT SHEET	[M]
		ACCESSORIES	
A1	N2QAYB000005	REMOTE CONTROL	[M]
A1-1	RKK-HTR0283	R/C BATTERY COVER	[M]
A2	K2CQ2CA00002	AC CORD	[M]EG E

Ref. No.	Part No.	Part Name & Description	Remarks
A2	K2CT3CA00004	AC CORD	[M]EB
A3	RQTV0119-D	O/I BOOK (Ge/It/Fr)	[M]EG
A3	RQTV0120-H	O/I BOOK (Du/Da/Sw)	[M]EG
A3	RQTV0121-E	O/I BOOK (Sp/Po/Cz)	[M]E
A3	RQTV0122-B	O/I BOOK (En)	[M]EB E
A4	RSA0007-L	FM ANTENNA WIRE	[M]
A5	K1YZ02000013	ANT ADAPTER	[M]EB
A6	N1DAAAA00001	AM LOOP ANTENNA	[M]
		CHIP RESISTORS	
W7001	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7002	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7003	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7004	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7005	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7006	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7007	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7008	ERJ6GEY0R00V	CHIP JUMPER	[M]
W7009	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7010	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7011	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7012	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7013	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7014	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7015	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7016	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7017	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7018	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7019	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7020	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7021	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7022	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7023	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7024	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7025	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7026	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7027	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA51	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA52	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA53	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA54	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA55	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA56	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA57	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA58	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA59	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA60	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA61	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA62	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA63	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA64	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA65	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA66	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA67	ERJ6GEY0R00V	CHIP JUMPER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
WA68	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA70	ERJ6GEY0R00V	CHIP JUMPER	[M]
WA1061	ERJ3GEY0R00V	CHIP JUMPER	[M]
		RESISTORS	
R201	ERJ6GEYJ562V	5.6K 1/10W	[M]
R202	ERJ6GEYJ562V	5.6K 1/10W	[M]
R203	ERJ6GEYJ272V	2.7K 1/10W	[M]
R204	ERJ6GEYJ682V	6.8K 1/10W	[M]
R205	D0GB472JA041	4.7K 1/16W	[M]
R206	ERJ6GEYJ153V	15K 1/10W	[M]
R207	D0GB472JA041	4.7K 1/16W	[M]
R209	ERJ6GEYJ183V	18K 1/10W	[M]
R210	ERJ6GEYJ102V	1K 1/10W	[M]
R211	ERJ6GEYJ822V	8.2K 1/10W	[M]
R212	D0GB182JA007	1.8K 1/16W	[M]
R220	D0GB104JA007	100K 1/16W	[M]
R221	D0GB153JA007	15K 1/16W	[M]
R222	D0GB683JA007	68K 1/16W	[M]
R223	ERJ6GEYJ470V	47 1/10W	[M]
R224	ERJ3GEYJ102V	1K 1/16W	[M]
R225	ERJ6GEYJ470V	47 1/10W	[M]
R226	D0GB392JA007	3.9K 1/16W	[M]
R227	D0GB392JA007	3.9K 1/16W	[M]
R230	D0GB104JA007	100K 1/16W	[M]
R251	ERDS2TJ821T	820 1/4W	[M]
R256	D0AE563JA048	56K 1/4W	[M]
R285	ERDS2TJ822T	8.2K 1/4W	[M]
R291	ERDS2TJ682T	6.8K 1/4W	[M]
R292	D0AE272JA048	2.7K 1/4W	[M]
R295	ERDS2TJ392T	3.9K 1/4W	[M]
R380	D0AE222JA048	2.2K 1/4W	[M]
R381	D0AE103JA048	10K 1/4W	[M]
R382	D0AE102JA048	1K 1/4W	[M]
R383	D0AE104JA048	100K 1/4W	[M]
R384	D0AE102JA048	1K 1/4W	[M]
R385	D0AE104JA048	100K 1/4W	[M]
R386	D0AE122JA048	1.2K 1/4W	[M]
R387	D0AE122JA048	1.2K 1/4W	[M]
R401	ERJ6GEYJ562V	5.6K 1/10W	[M]
R402	ERJ6GEYJ562V	5.6K 1/10W	[M]
R403	ERJ6GEYJ272V	2.7K 1/10W	[M]
R404	ERJ6GEYJ682V	6.8K 1/10W	[M]
R406	ERJ6GEYJ153V	15K 1/10W	[M]
R409	ERJ6GEYJ183V	18K 1/10W	[M]
R410	ERJ6GEYJ102V	1K 1/10W	[M]
R411	ERJ6GEYJ822V	8.2K 1/10W	[M]
R412	D0GB182JA007	1.8K 1/16W	[M]
R420	D0GB104JA007	100K 1/16W	[M]
R421	D0GB153JA007	15K 1/16W	[M]
R422	D0GB683JA007	68K 1/16W	[M]
R423	ERJ6GEYJ470V	47 1/10W	[M]
R424	ERJ3GEYJ102V	1K 1/16W	[M]
R425	ERJ6GEYJ470V	47 1/10W	[M]
R426	D0GB392JA007	3.9K 1/16W	[M]
R427	D0GB392JA007	3.9K 1/16W	[M]

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
R430	D0GB104JA007	100K 1/16W	[M]
R441	ERD2FCVG330T	33 1/4W	[M]
R442	D0GB562JA007	5.6K 1/16W	[M]
R443	D0GB332JA007	3.3K 1/16W	[M]
R444	D0GB332JA007	3.3K 1/16W	[M]
R445	D0GB562JA007	5.6K 1/16W	[M]
R446	ERJ3GEYJ822V	8.2K 1/16W	[M]
R447	ERJ3GEYJ822V	8.2K 1/16W	[M]
R451	ERDS2TJ821T	820 1/4W	[M]
R456	D0AE563JA048	56K 1/4W	[M]
R485	ERDS2TJ822T	8.2K 1/4W	[M]
R491	ERDS2TJ682T	6.8K 1/4W	[M]
R492	D0AE272JA048	2.7K 1/4W	[M]
R495	ERDS2TJ392T	3.9K 1/4W	[M]
R501	ERDS2TJ1R2T	1.2 1/4W	[M]
R502	ERDS2TJ1R2T	1.2 1/4W	[M]
R503	ERDS2TJ1R2T	1.2 1/4W	[M]
R504	D0AE221JA048	220 1/4W	[M]
R505	D0AE104JA048	100K 1/4W	[M]
R511	D0AE221JA048	220 1/4W	[M]
R514	D0AE222JA048	2.2K 1/4W	[M]
R515	ERDS2TG152T	1.5K 1/4W	[M]
R517	D0AE471JA048	470 1/4W	[M]
R518	D0AE102JA048	1K 1/4W	[M]
R520	D0AE471JA048	470 1/4W	[M]
R586	D0AE473JA048	47K 1/4W	[M]
R600	D0AE473JA048	47K 1/4W	[M]
R601	D0AE220JA048	22 1/4W	[M]
R603	ERDS2TJ821T	820 1/4W	[M]
R604	D0AE472JA048	4.7K 1/4W	[M]
R605	D0AE151JA048	150 1/4W	[M]
R606	D0AE103JA048	10K 1/4W	[M]
R607	D0AE103JA048	10K 1/4W	[M]
R608	ERD2FCVG120T	12 1/4W	[M]
R611	D0AE332JA048	3.3K 1/4W	[M]
R612	D0AE2R2JA048	2.2 1/4W	[M]
R613	D0AE2R2JA048	2.2 1/4W	[M]
R614	D0AE2R2JA048	2.2 1/4W	[M]
R615	D0AE2R2JA048	2.2 1/4W	[M]
R750	D0GB472JA041	4.7K 1/16W	[M]
R751	ERJ3GEYJ102V	1K 1/16W	[M]
R752	D0GB222JA041	2.2K 1/16W	[M]
R753	D0AF100JA039	10 1/4W	[M]
R755	D0GB472JA041	4.7K 1/16W	[M]
R756	D0GB472JA041	4.7K 1/16W	[M]
R803	D0GB472JA041	4.7K 1/16W	[M]
R804	D0GB472JA041	4.7K 1/16W	[M]
R805	ERJ3GEYJ103V	10K 1/16W	[M]
R806	ERJ3GEYJ103V	10K 1/16W	[M]
R807	ERJ6GEYJ472V	4.7K 1/10W	[M]
R808	ERJ6GEYJ472V	4.7K 1/10W	[M]
R809	D0GB101JA007	100 1/16W	[M]
R810	D0GB101JA007	100 1/16W	[M]
R811	D0GB101JA007	100 1/16W	[M]
R812	D0GB101JA007	100 1/16W	[M]
R813	D0GB101JA007	100 1/16W	[M]
R815	ERJ3GEYJ103V	10K 1/16W	[M]

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
R816	ERJ3GEYJ103V	10K 1/16W	[M]
R817	D0GB101JA007	100 1/16W	[M]
R819	ERJ3GEYJ102V	1K 1/16W	[M]
R820	ERJ3GEYJ102V	1K 1/16W	[M]
R821	D0GB474JA041	470K 1/16W	[M]
R823	D0GB101JA007	100 1/16W	[M]
R824	D0GB101JA007	100 1/16W	[M]
R825	ERJ3GEYJ102V	1K 1/16W	[M]
R826	ERJ3GEYJ102V	1K 1/16W	[M]
R827	D0GB272JA007	2.7K 1/16W	[M]
R828	D0GB821JA007	820 1/16W	[M]
R829	ERJ3GEYJ103V	10K 1/16W	[M]
R830	ERJ3GEYJ103V	10K 1/16W	[M]
R831	ERJ3GEYJ103V	10K 1/16W	[M]
R832	D0GB101JA007	100 1/16W	[M]
R833	D0GB101JA007	100 1/16W	[M]
R834	D0GB101JA007	100 1/16W	[M]
R835	D0GB101JA007	100 1/16W	[M]
R837	D0GB562JA007	5.6K 1/16W	[M]
R838	ERJ3GEYJ102V	1K 1/16W	[M]
R839	ERJ3GEYJ102V	1K 1/16W	[M]
R840	D0GB105JA007	1M 1/16W	[M]
R841	ERJ3GEYJ103V	10K 1/16W	[M]
R842	D0GB334JA007	330K 1/16W	[M]
R843	ERJ3GEYJ102V	1K 1/16W	[M]
R844	ERJ3GEYJ102V	1K 1/16W	[M]
R845	ERJ3GEYJ103V	10K 1/16W	[M]
R846	D0GB472JA041	4.7K 1/16W	[M]
R847	D0GB101JA007	100 1/16W	[M]
R848	D0GB472JA041	4.7K 1/16W	[M]
R849	ERJ3GEYJ102V	1K 1/16W	[M]
R850	D0GB223JA041	22K 1/16W	[M]
R851	ERJ3GEYJ103V	10K 1/16W	[M]
R852	ERJ3GEYJ103V	10K 1/16W	[M]
R853	ERJ3GEYJ102V	1K 1/16W	[M]
R854	ERJ3GEYJ102V	1K 1/16W	[M]
R855	ERJ3GEYJ102V	1K 1/16W	[M]
R856	D0GB101JA007	100 1/16W	[M]
R857	D0GB473JA041	47K 1/16W	[M]
R858	D0GB472JA041	4.7K 1/16W	[M]
R859	D0GB472JA041	4.7K 1/16W	[M]
R861	D0GB101JA007	100 1/16W	[M]
R862	D0GB101JA007	100 1/16W	[M]
R863	D0GB101JA007	100 1/16W	[M]
R864	ERJ3GEYJ102V	1K 1/16W	[M]
R865	ERJ3GEYJ102V	1K 1/16W	[M]
R866	ERJ3GEYJ102V	1K 1/16W	[M]
R867	ERJ3GEYJ102V	1K 1/16W	[M]
R868	ERJ3GEYJ102V	1K 1/16W	[M]
R869	ERJ3GEYJ102V	1K 1/16W	[M]
R870	ERJ3GEYJ102V	1K 1/16W	[M]
R871	ERJ3GEYJ102V	1K 1/16W	[M]
R872	ERJ3GEYJ102V	1K 1/16W	[M]
R873	ERJ3GEYJ102V	1K 1/16W	[M]
R877	D0GB223JA041	22K 1/16W	[M]
R878	D0GB223JA041	22K 1/16W	[M]
R879	D0GB104JA007	100K 1/16W	[M]

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
R880	D0GB472JA041	4.7K 1/16W	[M]
R882	ERJ3GEYJ102V	1K 1/16W	[M]
R883	D0GB104JA007	100K 1/16W	[M]
R884	D0GB104JA007	100K 1/16W	[M]
R885	D0GB104JA007	100K 1/16W	[M]
R886	ERJ3GEYJ102V	1K 1/16W	[M]
R887	ERJ3GEYJ102V	1K 1/16W	[M]
R888	ERJ3GEYJ102V	1K 1/16W	[M]
R889	D0GB101JA007	100 1/16W	[M]
R890	D0GB153JA007	15K 1/16W	[M]
R891	D0GB153JA007	15K 1/16W	[M]
R892	D0GB104JA007	100K 1/16W	[M]
R893	D0GB104JA007	100K 1/16W	[M]
R896	ERJ3GEYJ102V	1K 1/16W	[M]
R901	ERJ3GEYJ122V	1.2K 1/16W	[M]
R902	D0GB152JA007	1.5K 1/16W	[M]
R903	D0GB222JA041	2.2K 1/16W	[M]
R904	D0GB332JA007	3.3K 1/16W	[M]
R905	D0GB472JA041	4.7K 1/16W	[M]
R910	ERJ3GEYJ122V	1.2K 1/16W	[M]
R911	D0GB152JA007	1.5K 1/16W	[M]
R912	D0GB222JA041	2.2K 1/16W	[M]
R913	D0GB332JA007	3.3K 1/16W	[M]
R914	D0GB472JA041	4.7K 1/16W	[M]
R915	ERJ3GEYJ102V	1K 1/16W	[M]
R917	D0GB221JA041	220 1/16W	[M]
R918	D0GB221JA041	220 1/16W	[M]
R920	D0GB221JA041	220 1/16W	[M]
R922	D0GB680JA007	68 1/16W	[M]
R923	D0GB680JA007	68 1/16W	[M]
R924	D0GB104JA007	100K 1/16W	[M]
R925	D0GB104JA007	100K 1/16W	[M]
R926	D0GB823JA007	82K 1/16W	[M]
R972	ERDS2TJ821T	820 1/4W	[M]
R973	ERDS2TJ393T	39K 1/4W	[M]
R1101	D0GB270JA007	27 1/16W	[M]
R1102	D0GB152JA007	1.5K 1/16W	[M]
R1103	D0GB183JA007	18K 1/16W	[M]
R1104	ERJ3GEYJ103V	10K 1/16W	[M]
R1105	D0GB222JA041	2.2K 1/16W	[M]
R1106	D0GB104JA007	100K 1/16W	[M]
R1107	ERJ3GEYJ102V	1K 1/16W	[M]
R1109	ERJ3GEYJ102V	1K 1/16W	[M]
R1110	D0GB333JA007	33K 1/16W	[M]
R1201	D0GB270JA007	27 1/16W	[M]
R1202	D0GB152JA007	1.5K 1/16W	[M]
R1203	D0GB183JA007	18K 1/16W	[M]
R1204	ERJ3GEYJ103V	10K 1/16W	[M]
R1205	D0GB222JA041	2.2K 1/16W	[M]
R1206	D0GB104JA007	100K 1/16W	[M]
R1207	ERJ3GEYJ102V	1K 1/16W	[M]
R1209	ERJ3GEYJ102V	1K 1/16W	[M]
R1210	D0GB333JA007	33K 1/16W	[M]
R1302	D0GB331JA007	330 1/16W	[M]
R1303	D0GB475JA007	4.7M 1/16W	[M]
R1304	D0GB223JA041	22K 1/16W	[M]
R1305	ERJ3GEYJ103V	10K 1/16W	[M]

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
R1307	ERD25FVJ220T	22 1/4W	[M]
R1308	ERD25FVJ220T	22 1/4W	[M]
R1309	D0AF471JA039	470 1/4W	[M]
R1313	ERJ3GEYJ103V	10K 1/16W	[M]
R1314	ERJ3GEYJ102V	1K 1/16W	[M]
R1318	ERJ3GEYJ103V	10K 1/16W	[M]
R1327	D0GB472JA041	4.7K 1/16W	[M]
R1328	D0GB153JA007	15K 1/16W	[M]
R1329	D0GB472JA041	4.7K 1/16W	[M]
R1330	ERD2FCVJ4R7T	4.7 1/4W	[M]
R1331	D0GB752JA007	7.5K 1/16W	[M]
R1332	ERJ3GEYJ103V	10K 1/16W	[M]
R1333	ERD2FCVJ4R7T	4.7 1/4W	[M]
R1334	D0GB223JA041	22K 1/16W	[M]
R1335	D0GB152JA007	1.5K 1/16W	[M]
R1337	ERJ3GEYJ103V	10K 1/16W	[M]
R1338	D0GB472JA041	4.7K 1/16W	[M]
R1341	D0GB471JA041	470 1/16W	[M]
R1342	D0GB473JA041	47K 1/16W	[M]
R1343	D0GB332JA007	3.3K 1/16W	[M]
R1344	D0GB273JA007	27K 1/16W	[M]
R1345	ERJ3GEYJ102V	1K 1/16W	[M]
R1371	D0GB223JA041	22K 1/16W	[M]
R1374	D0GB471JA041	470 1/16W	[M]
R1401	D0GB123JA007	12K 1/16W	[M]
R1402	D0GB274JA007	270K 1/16W	[M]
R1403	ERJ3GEYJ103V	10K 1/16W	[M]
R1404	D0GB223JA041	22K 1/16W	[M]
R1405	ERJ3GEYJ103V	10K 1/16W	[M]
R7028	ERJ3GEY0R00V	0 1/16W	[M]
R7111	ERJ3GEYJ103V	10K 1/16W	[M]
R7211	D0GB823JA007	82K 1/16W	[M]
R7212	D0GB821JA007	820 1/16W	[M]
R7214	D0GB471JA041	470 1/16W	[M]
R7217	ERJ3GEYJ102V	1K 1/16W	[M]
R7218	ERJ3GEYJ102V	1K 1/16W	[M]
R7220	D0GB105JA007	1M 1/16W	[M]
R7221	D0GB101JA007	100 1/16W	[M]
R7253	D0GB100JA007	10 1/16W	[M]
R7254	ERJ3GEYJ102V	1K 1/16W	[M]
R7315	D0GB332JA007	3.3K 1/16W	[M]
R7323	D0GB332JA007	3.3K 1/16W	[M]
R7325	D0GB331JA007	330 1/16W	[M]
R7327	ERJ3GEYJ102V	1K 1/16W	[M]
R7328	ERJ3GEYJ103V	10K 1/16W	[M]
R7329	ERJ3GEYJ102V	1K 1/16W	[M]
R7330	D0GB562JA007	5.6K 1/16W	[M]
R7331	D0GB223JA041	22K 1/16W	[M]
R7332	ERJ3GEYJ102V	1K 1/16W	[M]
R7335	D0GB101JA007	100 1/16W	[M]
R7336	D0GB100JA007	10 1/16W	[M]
R7339	ERJ3GEYJ102V	1K 1/16W	[M]
R7349	D0GB183JA007	18K 1/16W	[M]
R7601	D0GB4R7JA007	4.7 1/16W	[M]
R7650	D0GB5R6JA007	5.6 1/16W	[M]
		CAPACITORS	

		[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
C201	F1H1H221A748	220P 50V	[M]
C203	F1H1H221A748	220P 50V	[M]
C205	F1H1H221A748	220P 50V	[M]
C209	F1H1H102A219	1000P 50V	[M]
C210	F1H1H221A748	220P 50V	[M]
C211	F1H1H102A219	1000P 50V	[M]
C212	ECJ1VB1H472K	4700P 50V	[M]
C216	F1H1H102A219	1000P 50V	[M]
C220	ECA1HAK010XB	1 50V	[M]
C221	F1H1H331A013	330P 50V	[M]
C222	F1H1H101A230	100P 50V	[M]
C223	F1H1H101A230	100P 50V	[M]
C224	ECA0JAK470XB	47 6.3V	[M]
C225	F1H1E103A029	0.01 25V	[M]
C230	F1H1H103A219	0.01 50V	[M]
C233	ECA1HAK010XB	1 50V	[M]
C254	ECA1HAK0R1XB	0.1 50V	[M]
C293	ECQV1H473JL3	0.047 50V	[M]
C297	F1D1H332A046	3300P 50V	[M]
C351	F1D1H471A012	470P 50V	[M]
C352	F1D1H102A012	1000P 50V	[M]
C361	F1H1H101A230	100P 50V	[M]
C362	F1D1H101A012	100P 50V	[M]
C363	F1D1H101A012	100P 50V	[M]
C364	ECQV1H224JL3	0.22 50V	[M]
C365	ECQV1H224JL3	0.22 50V	[M]
C368	ECA1CAK220XB	22 16V	[M]
C369	F1H1H101A230	100P 50V	[M]
C370	ECQV1H224JL3	0.22 50V	[M]
C371	F1D1H1040002	0.1 50V	[M]
C372	F1D1H102A012	1000P 50V	[M]
C373	F1D1H471A012	470P 50V	[M]
C374	ECA1HAK100XB	10 50V	[M]
C375	F1E1H1030001	0.01 50V	[M]
C375	F1H1H102A219	1000P 50V	[M]
C376	ECQV1H224JL3	0.22 50V	[M]
C377	F1E1H1030001	0.01 50V	[M]
C380	ECA1HAK3R3XB	3.3 50V	[M]
C382	ECA1HAK100XB	10 50V	[M]
C383	ECA1HAK3R3XB	3.3 50V	[M]
C385	ECA1HAK100XB	10 50V	[M]
C401	F1H1H221A748	220P 50V	[M]
C403	F1H1H221A748	220P 50V	[M]
C405	F1H1H221A748	220P 50V	[M]
C409	F1H1H102A219	1000P 50V	[M]
C410	F1H1H221A748	220P 50V	[M]
C411	F1H1H102A219	1000P 50V	[M]
C412	ECJ1VB1H472K	4700P 50V	[M]
C416	F1H1H102A219	1000P 50V	[M]
C420	ECA1HAK010XB	1 50V	[M]
C421	F1H1H331A013	330P 50V	[M]
C422	F1H1H101A230	100P 50V	[M]
C423	F1H1H101A230	100P 50V	[M]
C424	ECA0JAK470XB	47 6.3V	[M]
C425	F1H1E103A029	0.01 25V	[M]
C430	F1H1H103A219	0.01 50V	[M]

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
C433	ECA1HAK010XB	1 50V	[M]
C440	F1H1E1530002	0.015 25V	[M]
C441	F1H1E1530002	0.015 25V	[M]
C442	F1H1E1530002	0.015 25V	[M]
C443	ECA1HAK0R1XB	0.1 50V	[M]
C444	ECJ1VB1C823K	0.082 16V	[M]
C445	ECA1HAK0R1XB	0.1 50V	[M]
C446	ECJ1VB1C823K	0.082 16V	[M]
C447	ECA1EPX470B	47 25V	[M]
C448	ECA1HAKR33XB	0.33 50V	[M]
C449	F1H1E1530002	0.015 25V	[M]
C454	ECA1HAK0R1XB	0.1 50V	[M]
C455	ECJ1VB1A124K	0.12 10V	[M]
C456	ECJ1VB1A124K	0.12 10V	[M]
C461	ECJ1VB1A124K	0.12 10V	[M]
C462	ECJ1VB1A124K	0.12 10V	[M]
C463	ECA1EPX470B	47 25V	[M]
C464	F1H1H470A230	47P 50V	[M]
C465	F1H1H470A230	47P 50V	[M]
C493	ECQV1H473JL3	0.047 50V	[M]
C497	F1D1H332A046	3300P 50V	[M]
C501	ECA1VAM682XE	6800 35V	[M]
C502	ECA1EAK100XB	10 25V	[M]
C507	F1E1H1030001	0.01 50V	[M]
C510	ECA1EAK100XB	10 25V	[M]
C512	ECQE2104KF3	0.1 250V	[M]
C514	F1E1H1030001	0.01 50V	[M]
C515	F1E1H1030001	0.01 50V	[M]
C516	F1E1H1030001	0.01 50V	[M]
C521	ECQB1H103JF3	0.01 50V	[M]
C522	ECQB1H103JF3	0.01 50V	[M]
C523	ECQB1H103JF3	0.01 50V	[M]
C524	ECQB1H103JF3	0.01 50V	[M]
C540	ECA1CAK220XB	22 16V	[M]
C541	ECA1CAK220XB	22 16V	[M]
C542	ECA1EAK100XB	10 25V	[M]
C586	ECA1HAK100XB	10 50V	[M]
C601	F1B1H103A007	0.01 50V	[M]
C603	ECA1CAM102XB	1000 16V	[M]
C604	F1E1H1030001	0.01 50V	[M]
C605	ECA1EM470B	47 25V	[M]
C609	ECA1HM101B	100 50V	[M]
C610	F1E1H1030001	0.01 50V	[M]
C611	ECA1HM470B	47 50V	[M]
C612	ECA1HM101B	100 50V	[M]
C750	ECA1HAK010XB	1 50V	[M]
C751	ECA0JAK470XB	47 6.3V	[M]
C752	F1H1E103A029	0.01 25V	[M]
C753	F1H1E103A029	0.01 25V	[M]
C754	ECA1CAM221XB	220 16V	[M]
C804	F1H1H104A783	0.1 50V	[M]
C805	ECA1CAK220XB	22 16V	[M]
C810	F1H1H102A219	1000P 50V	[M]
C812	F1H1H102A219	1000P 50V	[M]
C816	ECA1CAK100XB	10 16V	[M]
C817	ECJ1VB1H472K	4700P 50V	[M]
C818	ECJ1VB1H472K	4700P 50V	[M]

[illegible]	[illegible]	[illegible]	[illegible]

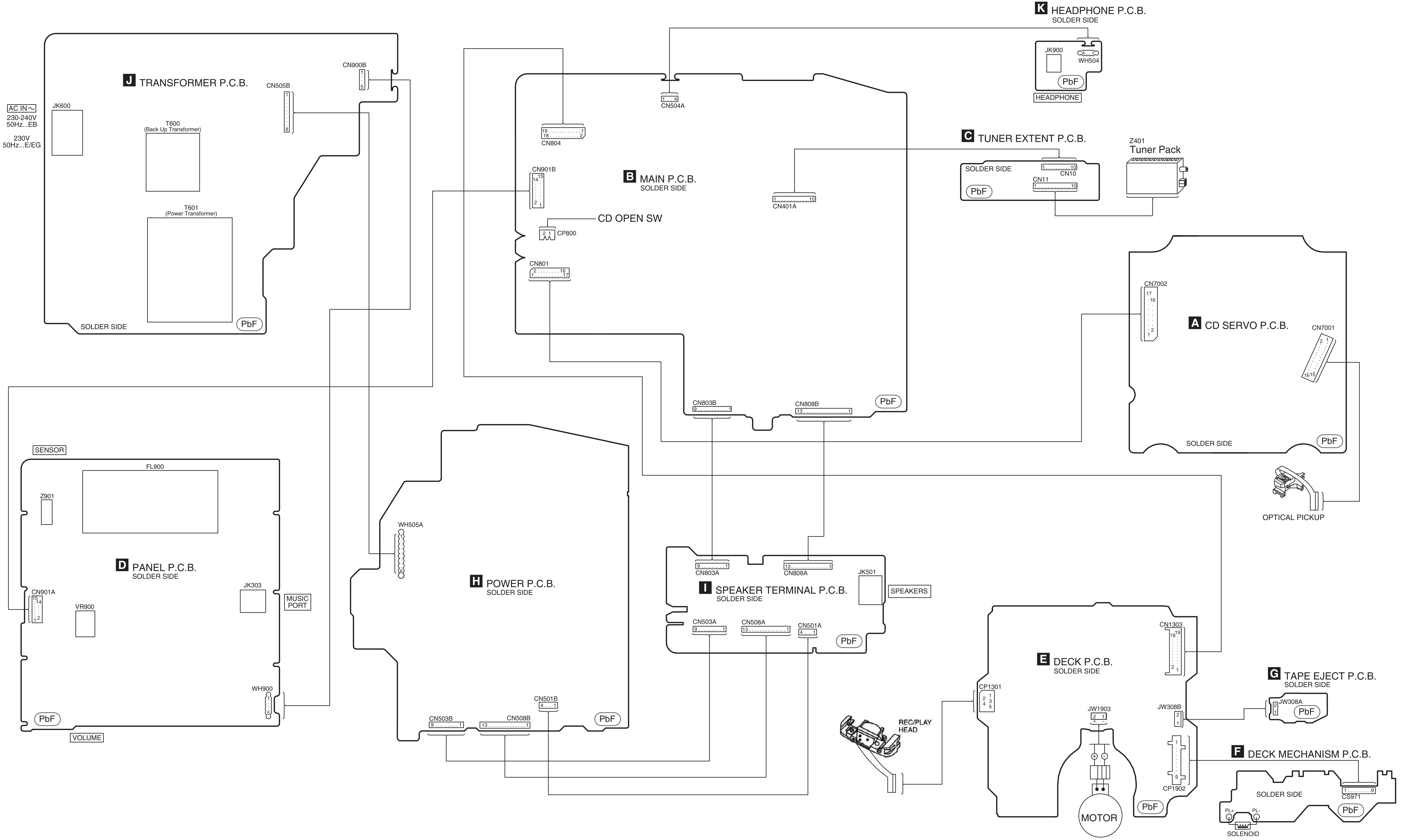
Ref. No.	Part No.	Part Name & Description	Remarks
C819	F1H1C104A042	0.1 16V	[M]
C820	ECJ1VB1H472K	4700P 50V	[M]
C821	ECJ1VB1H472K	4700P 50V	[M]
C822	ECJ1VB1H472K	4700P 50V	[M]
C823	ECJ1VB1H472K	4700P 50V	[M]
C824	ECJ1VB1H472K	4700P 50V	[M]
C825	ECJ1VB1H472K	4700P 50V	[M]
C829	F1H1H470A230	47P 50V	[M]
C831	F1H1C104A042	0.1 16V	[M]
C832	F1H1C104A042	0.1 16V	[M]
C833	ECJ1VC1H180J	18P 50V	[M]
C834	ECJ1VC1H180J	18P 50V	[M]
C835	ECJ1VC1H180J	18P 50V	[M]
C836	ECJ1VC1H220J	22P 50V	[M]
C837	ECA0JAK101XB	100 6.3V	[M]
C838	ECA0JAK101XB	100 6.3V	[M]
C839	ECA0JAM102XB	1000 6.3V	[M]
C840	ECA0JAM102XB	1000 6.3V	[M]
C842	F1H1H102A219	1000P 50V	[M]
C843	F1H1H101A230	100P 50V	[M]
C844	ECA1HAK010XB	1 50V	[M]
C845	F1H1E103A029	0.01 25V	[M]
C846	ECA1HAK010XB	1 50V	[M]
C851	F1H1E103A029	0.01 25V	[M]
C852	F1H1H101A230	100P 50V	[M]
C853	F1H1H101A230	100P 50V	[M]
C860	ECA1CAK100XB	10 16V	[M]
C861	F1H1H331A013	330P 50V	[M]
C862	ECA1CAK100XB	10 16V	[M]
C863	ECJ1VB1H561K	560P 50V	[M]
C864	F1H1H470A230	47P 50V	[M]
C865	F1H1H470A230	47P 50V	[M]
C866	F1H1H102A219	1000P 50V	[M]
C867	F1H1E103A029	0.01 25V	[M]
C868	ECA0JAK470XB	47 6.3V	[M]
C869	F1H1H101A230	100P 50V	[M]
C870	F1H1H101A230	100P 50V	[M]
C900	ECA1HAK2R2XB	2.2 50V	[M]
C901	ECA1HAK2R2XB	2.2 50V	[M]
C902	ECA1HAK2R2XB	2.2 50V	[M]
C903	ECA1HAK2R2XB	2.2 50V	[M]
C904	ECA1HAK2R2XB	2.2 50V	[M]
C905	ECA1HAK2R2XB	2.2 50V	[M]
C906	ECA1HAK2R2XB	2.2 50V	[M]
C907	ECA1HAK2R2XB	2.2 50V	[M]
C909	ECA1HAK220XB	22 50V	[M]
C910	ECA1HAK220XB	22 50V	[M]
C911	ECA1HAK220XB	22 50V	[M]
C912	F1H1H104A783	0.1 50V	[M]
C913	F1H1H103A219	0.01 50V	[M]
C914	F1H1H104A783	0.1 50V	[M]
C918	ECA1HAK4R7XB	4.7 50V	[M]
C920	F1H1H101A230	100P 50V	[M]
C921	F1H1H101A230	100P 50V	[M]
C922	ECA0JAK470XB	47 6.3V	[M]
C923	ECA1HAK220XB	22 50V	[M]
C924	ECA1AAK220XB	22 10V	[M]

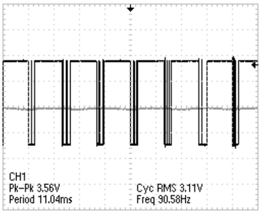
[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
C925	F1H1H101A230	100P 50V	[M]
C926	F1H1H101A230	100P 50V	[M]
C927	F1H1H101A230	100P 50V	[M]
C950	ECA1HAK4R7XB	4.7 50V	[M]
C1101	ECA1HAK010XB	1 50V	[M]
C1102	F1H1H471A219	470P 50V	[M]
C1103	ECA1CAK101XB	100 16V	[M]
C1104	F1H1C2730001	0.027 16V	[M]
C1105	F1H1H471A219	470P 50V	[M]
C1106	ECA1HAK2R2XB	2.2 50V	[M]
C1107	F1H1H152A219	1500P 50V	[M]
C1108	F2A1C1000018	10P 16V	[M]
C1109	ECA1HAK3R3XB	3.3 50V	[M]
C1110	F1H1H682A219	6800P 50V	[M]
C1121	F1H1H102A219	1000P 50V	[M]
C1122	F1H1H103A219	0.01 50V	[M]
C1123	ECJ1VB1H271K	270P 50V	[M]
C1201	ECA1HAK010XB	1 50V	[M]
C1202	F1H1H471A219	470P 50V	[M]
C1203	ECA1CAK101XB	100 16V	[M]
C1204	F1H1C2730001	0.027 16V	[M]
C1205	F1H1H471A219	470P 50V	[M]
C1206	ECA1HAK2R2XB	2.2 50V	[M]
C1207	F1H1H152A219	1500P 50V	[M]
C1208	F2A1C1000018	10P 16V	[M]
C1209	ECA1HAK3R3XB	3.3 50V	[M]
C1210	F1H1H682A219	6800P 50V	[M]
C1221	F1H1H102A219	1000P 50V	[M]
C1222	F1H1H103A219	0.01 50V	[M]
C1223	ECJ1VB1H271K	270P 50V	[M]
C1301	ECA1HAK0R1XB	0.1 50V	[M]
C1302	F1H1C333A071	0.033 16V	[M]
C1303	F1H1C333A071	0.033 16V	[M]
C1304	ECA1HAK4R7XB	4.7 50V	[M]
C1305	ECA1CAK330XB	33 16V	[M]
C1307	ECA1AAK221XQ	220 10V	[M]
C1308	ECA1CAK220XB	22 16V	[M]
C1310	ECA1HAK0R1XB	0.1 50V	[M]
C1311	ECA1CAK470XB	47 16V	[M]
C1312	F1H1H332A013	3300P 50V	[M]
C1314	F1H1H222A013	2200P 50V	[M]
C1315	F1H1H222A013	2200P 50V	[M]
C1316	F1H1H102A219	1000P 50V	[M]
C1317	F1H1H102A219	1000P 50V	[M]
C1318	ECQV1H473JL3	0.047 50V	[M]
C1319	ECA1CAK101XB	100 16V	[M]
C1320	ECA1HAK010XB	1 50V	[M]
C1321	F0A2A472A019	4700P 100V	[M]
C1323	ECEA1HKN010B	1 50V	[M]
C1324	ECA1CAK470XB	47 16V	[M]
C1326	F2A1C1000018	10P 16V	[M]
C1371	F1H1H103A219	0.01 50V	[M]
C7102	ECJ1VB1A474K	0.47 10V	[M]
C7107	ECJ1VB1H223K	0.022 50V	[M]
C7142	F1H1H332A013	3300P 50V	[M]
C7154	F1H1C104A041	0.1 16V	[M]
C7155	F1H1C104A041	0.1 16V	[M]

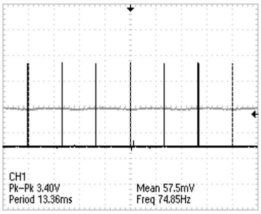
Ref. No.	Part No.	Part Name & Description	Remarks
C7161	F1H1C104A041	0.1 16V	[M]
C7164	ECJ2FF1A106Z	10 10V	[M]
C7165	ECJ2FF1A106Z	10 10V	[M]
C7166	F1H1H103A219	0.01 50V	[M]
C7203	F2A0J221A200	220P 6.3V	[M]
C7204	F1H1C104A041	0.1 16V	[M]
C7216	ECJ1VB1H681K	680P 50V	[M]
C7217	F1H1C104A041	0.1 16V	[M]
C7218	ECJ1VB1C823K	0.082 16V	[M]
C7223	ECEA1HKA4R7I	4.7 50V	[M]
C7225	F1H1H102A219	1000P 50V	[M]
C7226	F1H1H102A219	1000P 50V	[M]
C7227	ECA1HAK010XI	1 50V	[M]
C7228	ECA1HAK010XI	1 50V	[M]
C7230	F1H1C104A041	0.1 16V	[M]
C7231	F2A0J221A200	220P 6.3V	[M]
C7232	F2A0J221A200	220P 6.3V	[M]
C7233	F1H1C104A008	0.1 16V	[M]
C7234	F1H1C104A041	0.1 16V	[M]
C7235	ECEA1CKA100I	10 16V	[M]
C7241	F1H1H102A219	1000P 50V	[M]
C7243	F1H1C104A008	0.1 16V	[M]
C7244	ECJ1VB1C153K	0.015 16V	[M]
C7253	F1H1H471A219	470P 50V	[M]
C7263	F1H1C104A041	0.1 16V	[M]
C7264	F1H1C104A041	0.1 16V	[M]
C7315	ECJ1VB1A474K	0.47 10V	[M]
C7334	ECEA1AKA221I	220 10V	[M]
C7335	F1H1C104A008	0.1 16V	[M]
C7338	ECJ1VB1C563K	0.056 16V	[M]
C7339	ECJ1VB1C183K	0.018 16V	[M]
C7352	ECJ1VB1C183K	0.018 16V	[M]
C7601	ECEA0JKA330I	33 6.3V	[M]
C7613	F1H1C104A041	0.1 16V	[M]
C7614	F2A0J101A198	100P 6.3V	[M]
C7626	F1H1C104A041	0.1 16V	[M]
C7670	F1H1C104A041	0.1 16V	[M]

FLE0602D/J/M/S/P

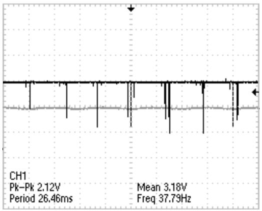

K HEADPHONE P.C.B.
SOLDER SIDE
JK900
WH504
PbF
HEADPHONE
J TRANSFORMER P.C.B.
CN900B
CN505B
AC IN∼
230-240V
50Hz...EB
230V
50Hz...E/EG
JK600
T600
(Back Up Transformer)
T601
(Power Transformer)
SOLDER SIDE
PbF
CN504A
CN804
CN901B
B MAIN P.C.B.
SOLDER SIDE
CD OPEN SW
CP800
CN801
CN401A
CN803B
CN808B
PbF
C TUNER EXTENT P.C.B.
SOLDER SIDE
CN10
CN11
PbF
Z401
Tuner Pack
CN7002
A CD SERVO P.C.B.
CN7001
SOLDER SIDE
PbF
OPTICAL PICKUP
SENSOR
FL900
Z901
D PANEL P.C.B.
SOLDER SIDE
CN901A
VR900
JK303
MUSIC PORT
WH900
PbF
VOLUME
WH505A
H POWER P.C.B.
SOLDER SIDE
CN501B
CN503B
CN508B
PbF
CN803A
CN808A
JK501
SPEAKERS
I SPEAKER TERMINAL P.C.B.
SOLDER SIDE
CN503A
CN508A
CN501A
PbF
CN1303
E DECK P.C.B.
SOLDER SIDE
CP1301
JW1903
JW308B
CP1902
MOTOR
PbF
REC/PLAY HEAD
G TAPE EJECT P.C.B.
SOLDER SIDE
JW308A
PbF
F DECK MECHANISM P.C.B.
CS971
SOLDER SIDE
PL+
PL-
SOLENOID
PbF



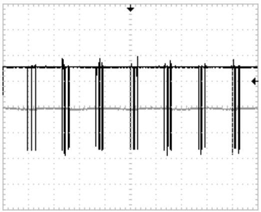
CN801 PIN 4
CD PLAY
3.4Vp-p (10msec.div)



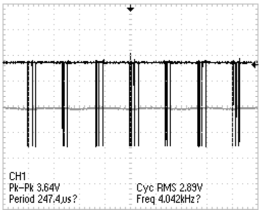
CN801 PIN 5
CD PLAY
3.56Vp-p (10msec.div)



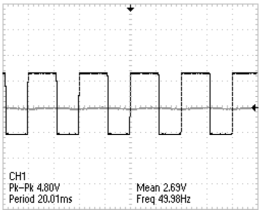
CN801 PIN 6
CD PLAY
3.12Vp-p (10msec.div)



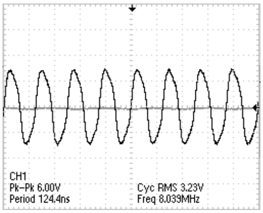
CN801 PIN 7
CD PLAY
3.84Vp-p (10msec.div)



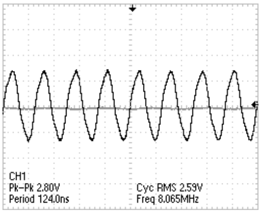
CN801 PIN 8
CD PLAY
3.64Vp-p (10msec.div)



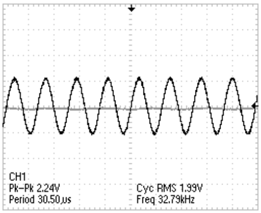
CN803B PIN 5
CD PLAY
4.8Vp-p (10msec.div)



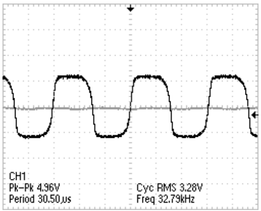
IC803 PIN 12
CD PLAY
6Vp-p (100nsec.div)



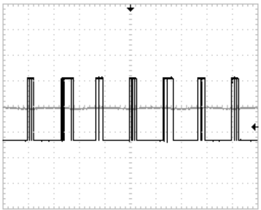
IC803 PIN 13
CD PLAY
2.8Vp-p (100nsec.div)



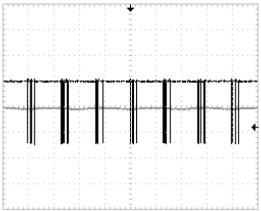
IC803 PIN 15
CD PLAY
2.24Vp-p (25usec.div)



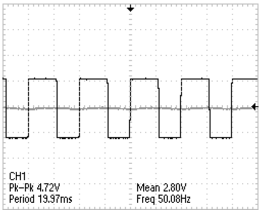
IC803 PIN 16
CD PLAY
4.96Vp-p (10usec.div)



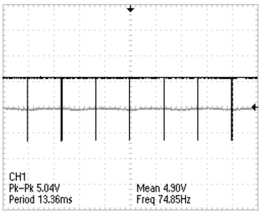
IC803 PIN 22
CD PLAY
1.07Vp-p (10msec.div)



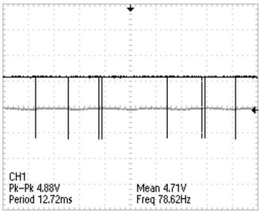
IC803 PIN 23
CD PLAY
4.6Vp-p (10msec.div)



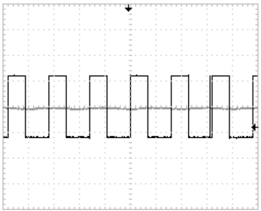
IC803 PIN 27
CD PLAY
4.72Vp-p (10msec.div)



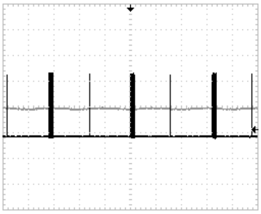
IC803 PIN 30
CD PLAY
5.04Vp-p (10msec.div)



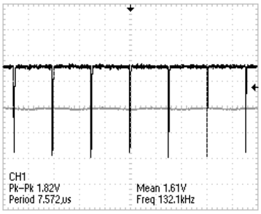
IC803 PIN 36
CD PLAY
4.88Vp-p (10msec.div)



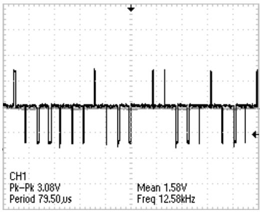
IC803 PIN 40
CD PLAY
2.05Vp-p (50msec.div)



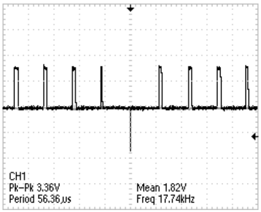
IC803 PIN 44
CD PLAY
218mVp-p (25msec.div)



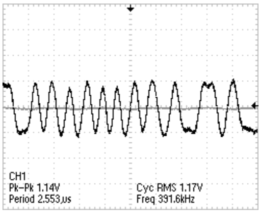
IC7001 PIN 21
CD PLAY
1.82Vp-p (5usec.div)



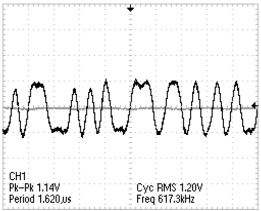
CN7001 PIN 24
CD PLAY
3.08Vp-p (25usec.div)



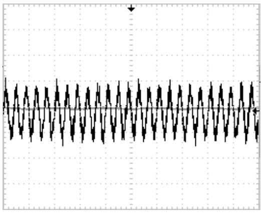
CN7001 PIN 25
CD PLAY
3.36Vp-p (10usec.div)



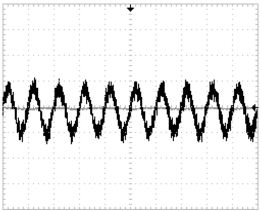
CN7001 PIN 49
CD PLAY
1.14Vp-p (2.5usec.div)



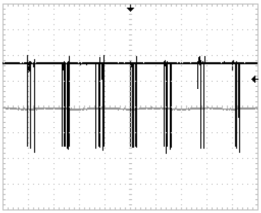
CN7001 PIN 50
CD PLAY
1.14Vp-p (2.5usec.div)



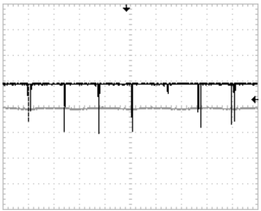
CN7001 PIN 56
CD PLAY
528mVp-p (2.5msec.div)



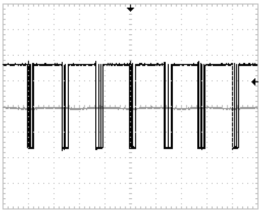
CN7001 PIN 59
CD PLAY
512mVp-p (1msec.div)



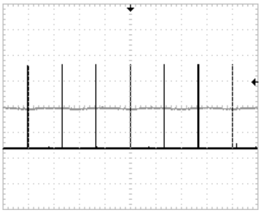
CN7001 PIN 68
CD PLAY
3.8Vp-p (10msec.div)



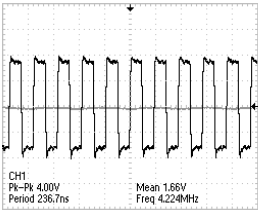
CN7001 PIN 69
CD PLAY
1.96Vp-p (10msec.div)



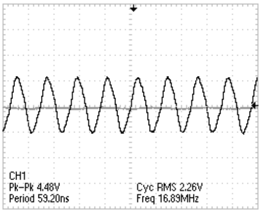
CN7001 PIN 70
CD PLAY
3.52Vp-p (10msec.div)



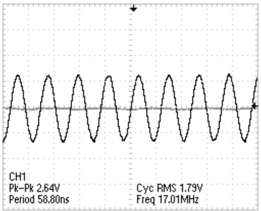
CN7001 PIN 71
CD PLAY
3.28Vp-p (10msec.div)



CN7001 PIN 74
CD PLAY
4Vp-p (250nsec.div)



CN7001 PIN 80
CD PLAY
4.48Vp-p (50nsec.div)



CN7001 PIN 81
CD PLAY
2.64Vp-p (50nsec.div)

TRANSFORMER P.C.B

Ref No.	Q600				Q601				Q602				Q603							
MODE	E	C	B		E	C	B		E	C	B		E	C	B					
CD PLAY	0	0.2	0.8		5.6	8.5	6.3		0	2.6	1.8		-23	-31.8	-23.7					
STANDBY	0	5.7	0		5.7	10	6.9		0	2.7	2		-21	-21.4	-21.4					

POWER P.C.B

Ref No.	IC300																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12								
CD PLAY	23.4	11.4	0	11.4	4.6	0	0	0	4.2	11.4	0	11.4								
STANDBY	2.9	0.3	0	0.3	0	0	0	0	0	0.3	0	0.3								
Ref No.	Q500				Q501				Q503				Q504				Q505			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	23.3	20	23.3		5	20	5.6		20.8	9.7	20.3		5	9.6	5.6		4.8	7.5	5.5	
STANDBY	4.3	2.4	4.3		2.4	2.5	3.2		2.9	0.2	2.5		2.4	0.2	0.1		0	0	0	
Ref No.	Q507				Q530															
MODE	E	C	B		E	C	B													
CD PLAY	7.5	9.7	8.2		8.8	9.7	9.5													
STANDBY	0	0.1	0.1		0	0.1	0.1													

PANEL P.C.B

Ref No.	IC900																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0	0	0	2.8	1.6	0.1	0.2	2.8	0	0	0	4.9	-22.7	-22.7	-22.7	-20.6	-22.7	-20.6	-22.7
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2
Ref No.	IC900																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	-22.7	-22.7	-20.6	-20.6	-22.7	-22.7	-22.7	-22.7	-20.6	-23.2	-20.8	-20.8	-20.8	-20.8	-20.8	-20.9	-20.9	-20.9	-20.9	-20.9
STANDBY	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2
Ref No.	IC900																			
MODE	41	42	43	44																
CD PLAY	-20.9	-20.9	4.9	0																
STANDBY	-21.2	-21.2	0	0																

MAIN P.C.B

Ref No.	IC700																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	4.8	4.8	2.4	9.6	0	4.8	4.8	0												
STANDBY	0	0.1	0.1	0.1	0.1	0	0	0												
Ref No.	IC800																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	0	0	0	9.1	9.1
STANDBY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0	0	0	0	0.2	0.2
Ref No.	IC800																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32								
CD PLAY	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5								
STANDBY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2								
Ref No.	IC801																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
CD PLAY	0.2	0.3	0.4	0	0	0.1	0	0	0.5	0	0.5	0	0	0	0	1				
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3				
Ref No.	IC802																			
MODE	1	2	3	4	5															
CD PLAY	3.3	0	4.9	0	4.9															
STANDBY	0.3	0	0.3	0	0.4															
Ref No.	IC803																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	4.8	4.8	4.8	4.8	3.2	1.5	0	0	4.8	4.8	2.4	2.4	0.5	2	2.4	0	0	0	0
STANDBY	0	4.8	4.8	2.3	4.8	0	0.4	0	0	4.8	4.9	2.4	2.5	0	2	2.4	0	0	0	0
Ref No.	IC803																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	4.5	1	4.5	0	4.5	4.8	2.7	4.8	4.8	4.8	1	1	4.8	0	4.6	4.6	0	0	0	2
STANDBY	0	0	0	0	0	4.8	2.8	0	0	0	0	0	4.8	0	0	0	0	0	0	0
Ref No.	IC803																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	1.1	0.1	0	0.3	0.1	0	0.1	0	4.7	2.4	0	1.3	4.4	0	0	0	0	0	0	0
STANDBY	0	0	0	0	0.1	0	0.1	0	0	2.4	0	2.1	0	0	0	0	0	0	0	0
Ref No.	IC803																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	4.7	4.1	6	0	4.4	0	0
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	4.8	4.1	0	0	4.5	0	0
Ref No.	IC803																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	4.7	0.8	0.8	0	0	0	4.7	0	4.8
STANDBY	0	0	0	0	0	0	0	0	0	0	0	4.8	2	2	0	4.8	4.8	4.8	0	4.8
Ref No.	IC804																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	4.8	0	0	0	0	0	0												
STANDBY	0	0	0	0	0	0	0	0												
Ref No.	Q221				Q222				Q421				Q422				Q750			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	0	0.3		0	0	0.3		0	0	0.3		0	0	0.3		9.6	0.3	9.7	
STANDBY	0	0	0		0	0	0		0	0	0		0	0	0		0.1	0	0.1	
Ref No.	Q751				Q801				Q802				Q803				Q804			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	9.7	0		0	4.8	0		0	1	1.2		0	0	4.6		0	4.7	0	
STANDBY	0	0.1	0.1		0	0	0		0	0	0		0	0.1	0		0	4.8	0	
Ref No.	Q807				Q808															
MODE	E	C	B		E	C	B													
CD PLAY	0	9.7	0		0	9.7	0													
STANDBY	0	0.1	0		0	0.1	0													

DECK MECHNISM P.C.B

Ref No.	IC971																			
MODE	1	2	3	4																
CD PLAY	4.7	4.8	3.6	4.8																
STANDBY	4.8	4.9	3.7	4.9																

DECK P.C.B

Ref No.	IC1000																			
MODE	1	2	3	4	5															
CD PLAY	6.8	0	0	0	0															
STANDBY	0.1	-0.1	0	0	0															

Ref No.	IC1001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0.7	5.1	4.3	0	4.8	0	0.2	0	6	0	8.9	0	0	0.2	0	3.6	0.2	4.3	5.1
STANDBY	0	0.6	0.5	0	0	0.9	0	0.1	0	0.1	0	0.1	0	0	0.1	0	0.1	0	0.2	0.5

Ref No.	IC1001																			
MODE	21	22																		
CD PLAY	0.1	0																		
STANDBY	0.5	0																		

Ref No.	Q1101				Q1201				Q1302				Q1303				Q1304			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	0	0.7		0	0	0.7		1.9	1.8	0		0	6.8	0		6.8	0	6.8	
STANDBY	0	0	0.7		0	0	0.7		19.8	1.8	0		0	0.1	0		0.1	0	0.1	

Ref No.	Q1309				Q1310				Q1312				Q1314				Q1315			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	9.7	0.1		0	9.7	0		0	0	0		9.7	-1.1	9.7		9.6	0	9.7	
STANDBY	0	0.1	0		0	0.1	0		0	0	0		0	0	0.1		0.1	0	0.1	

Ref No.	Q1316				Q1317															
MODE	E	C	B		E	C	B													
CD PLAY	0	9	-1.1		0	0	0													
STANDBY	0	0	0		0	0	0													

CD SERVO P.C.B

Ref No.	IC7001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	3.3
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	0	0	0.3

Ref No.	IC7001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	1.6	0	1.6	0	1.8	0	3.3	1.5	3.3	3.3	0	0	1.6	1.6	1.6	2	2	1.4	1.8	1.8
STANDBY	0	0	0	0	0	0	0.4	0	0.2	0.2	0	0	0.2	0	0	0	0.2	0.2	0.2	0.2

Ref No.	IC7001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	0.2	2.4	0	1.8	1.2	1.8	3.3	1.2	1.2	1.2	1.7	1.9	0.8	1.5	1.4	0	0	3	1.5	0
STANDBY	0	0.3	0	0	0.2	0.1	0.3	0.4	0.2	0.2	0.1	0.1	0.3	0	0	0	0	0.4	0	0

Ref No.	IC7001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	3.3	0	0	0	0	0	3.1	3.1	3.1	2.5	0	3.1	0	1.6	0	1.5	3.3	0	3.3	1.6
STANDBY	0.2	0.2	0.2	0.2	0.2	0.2	0	0	0	0	0	0	0.2	0.3	0.3	0	0.2	0	0.2	0.1

Ref No.	IC7001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	1.6	2.3	0	0	0	0	0	0	0	0	0	0	3.3	0	0	0	0	0	0	0
STANDBY	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0

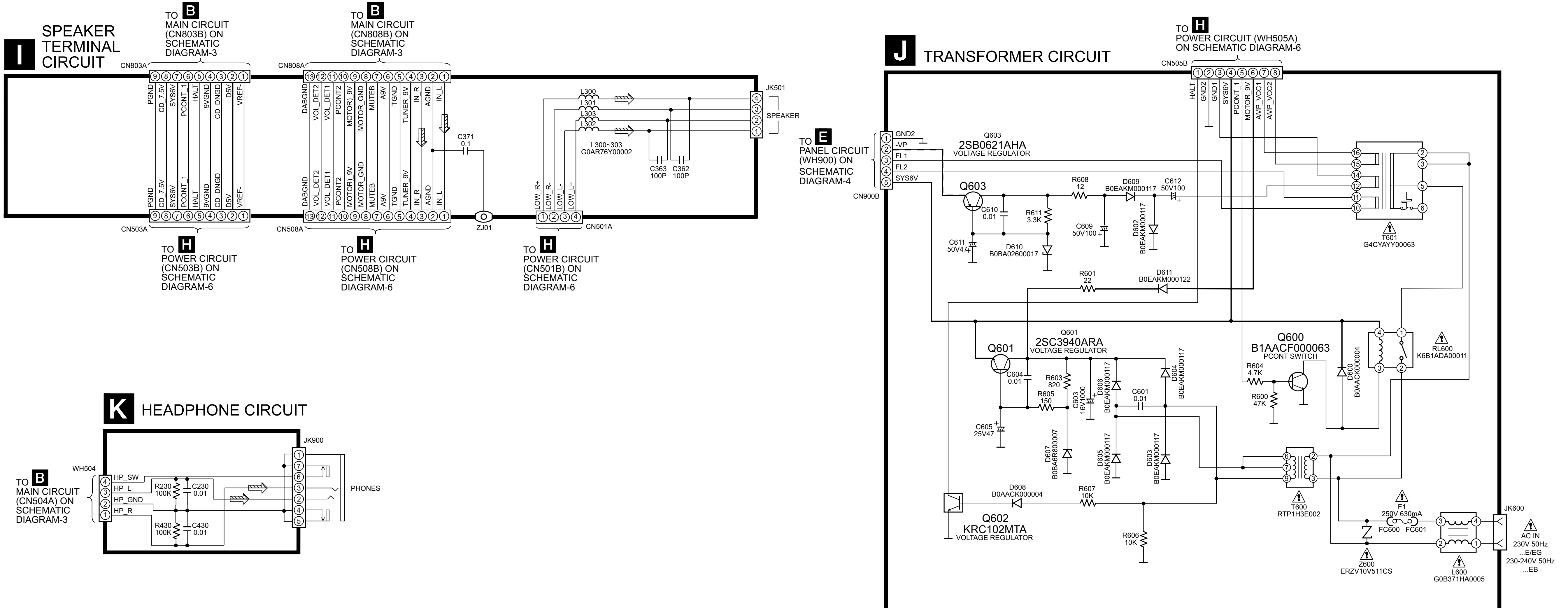
Ref No.	IC7002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.6	0	1.6	0	0	0	0	0	0	7.5	4.2	3.5	3.5	3.5	0	3.3	0	3.8	7.5	0
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ref No.	IC7002																			
MODE	21	22	23	24	25	26	27	28												
CD PLAY	0	7.5	0	0	7.5	0	1.6	0												
STANDBY	0	0	0	0	0	0	0	0												

Ref No.	Q7601																			
MODE	E	C	B																	
CD PLAY	3.3	2.4	2.4																	
STANDBY	0.3	0	0.3																	

SCHEMATIC DIAGRAM - 7

—·— : -B SIGNAL LINE —— : +B SIGNAL LINE ⇨ : MAIN SIGNAL LINE

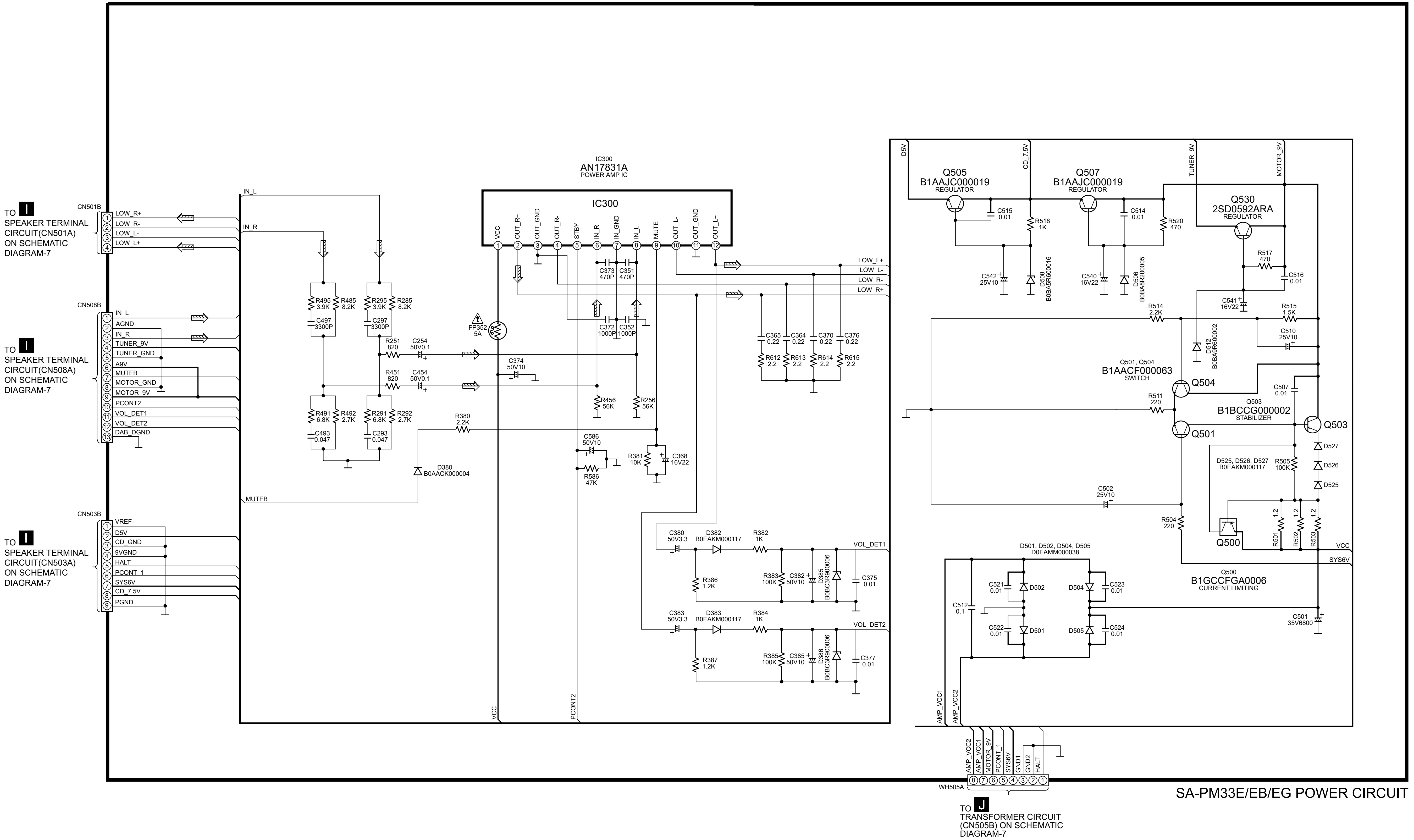

I
SPEAKER TERMINAL CIRCUIT
TO B MAIN CIRCUIT (CN803B) ON SCHEMATIC DIAGRAM-3
TO B MAIN CIRCUIT (CN808B) ON SCHEMATIC DIAGRAM-3
CN803A
CN808A
PGND
CD_7.5V
SYS6V
PCONT_1
HALT
9VGND
CD_DNGD
D5V
VREF-
DABGND
VOL_DET2
VOL_DET1
PCONT2
MOTOR_9V
MOTOR_GND
MUTEB
A9V
TGND
TUNER_9V
IN_R
AGND
IN_L
C371 0.1
L300
L301
L303
L302
L300~303 G0AR76Y00002
C363 100P
C362 100P
JK501
SPEAKER
LOW_R+
LOW_R-
LOW_L-
LOW_L+
CN503A
CN508A
ZJ01
CN501A
TO H POWER CIRCUIT (CN503B) ON SCHEMATIC DIAGRAM-6
TO H POWER CIRCUIT (CN508B) ON SCHEMATIC DIAGRAM-6
TO H POWER CIRCUIT (CN501B) ON SCHEMATIC DIAGRAM-6
J
TRANSFORMER CIRCUIT
TO H POWER CIRCUIT (WH505A) ON SCHEMATIC DIAGRAM-6
CN505B
HALT
GND2
GND1
SYS6V
PCONT_1
MOTOR_9V
AMP_VCC1
AMP_VCC2
TO E PANEL CIRCUIT (WH900) ON SCHEMATIC DIAGRAM-4
CN900B
GND2
-VP
FL1
FL2
SYS6V
Q603 2SB0621AHA VOLTAGE REGULATOR
Q603
C610 0.01
R611 3.3K
C611 50V47
D610 B0BA02600017
R608 12
D609 B0EAKM000117
C612 50V100
C609 50V100
D602 B0EAKM000117
T601 G4CYAYY00063
R601 22
D611 B0EAKM000122
Q601
Q601 2SC3940ARA VOLTAGE REGULATOR
C604 0.01
R603 820
R605 150
C603 16V1000
D606 B0EAKM000117
C601 0.01
D604 B0EAKM000117
C605 25V47
D607 B0BA6R800007
D605 B0EAKM000117
D603 B0EAKM000117
Q600 B1AACF000063 PCONT SWITCH
R604 4.7K
R600 47K
D600 B0AACK000004
RL600 K6B1ADA00011
D608 B0AACK000004
R607 10K
Q602 KRC102MTA VOLTAGE REGULATOR
R606 10K
T600 RTP1H3E002
F1 250V 630mA
FC600 FC601
Z600 ERZV10V511CS
L600 G0B371HA0005
JK600
AC IN 230V 50Hz ...E/EG 230-240V 50Hz ...EB
K
HEADPHONE CIRCUIT
TO B MAIN CIRCUIT (CN504A) ON SCHEMATIC DIAGRAM-3
WH504
HP_SW
HP_L
HP_GND
HP_R
R230 100K
C230 0.01
R430 100K
C430 0.01
JK900
PHONES

SA-PM33E/EB/EG SPEAKER TERMINAL / TRANSFORMER / HEADPHONE CIRCUIT

H POWER CIRCUIT

—— : +B SIGNAL LINE

⇨ : MAIN SIGNAL LINE

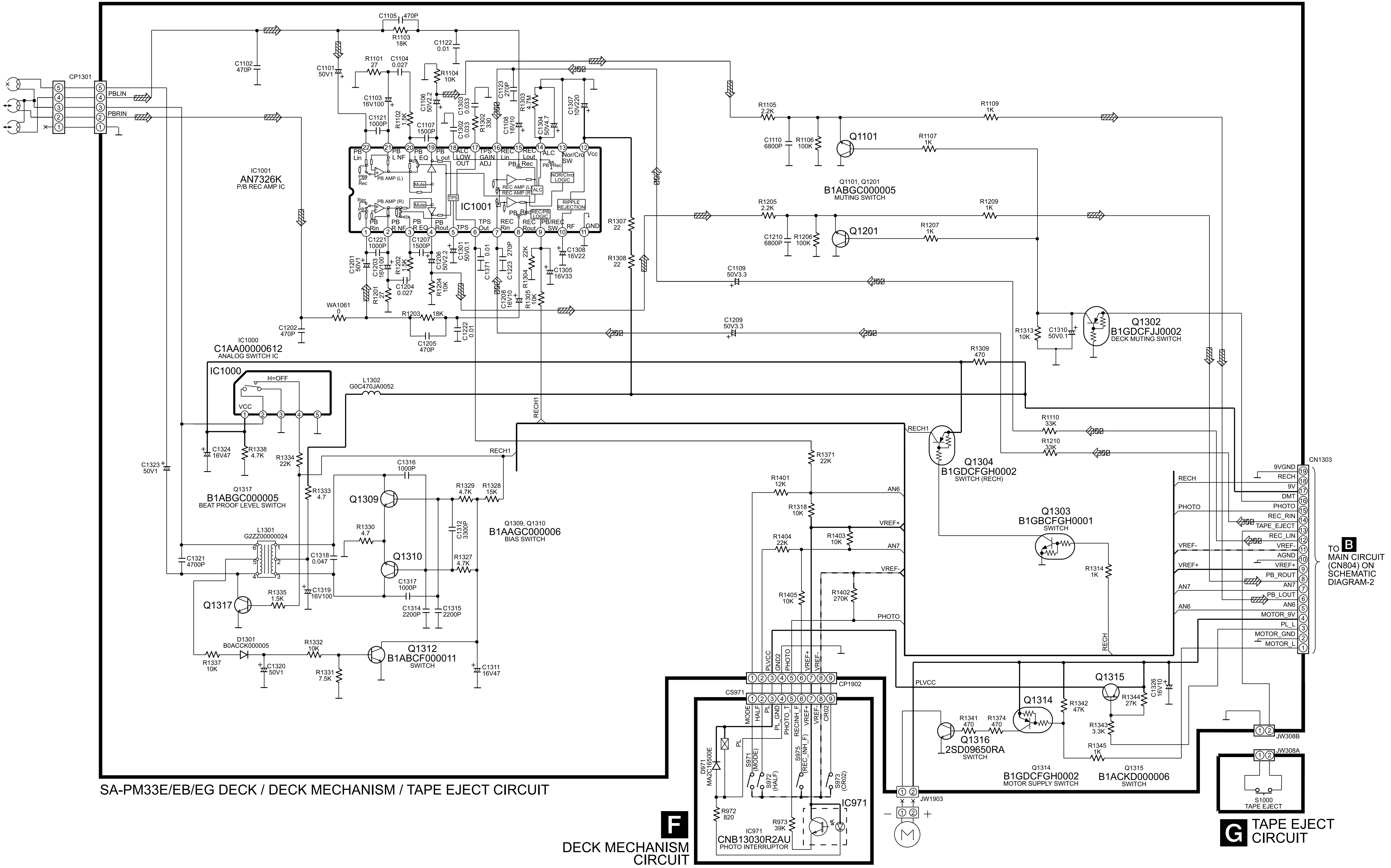

TO I SPEAKER TERMINAL CIRCUIT(CN501A) ON SCHEMATIC DIAGRAM-7
CN501B
LOW_R+
LOW_R-
LOW_L-
LOW_L+
TO I SPEAKER TERMINAL CIRCUIT(CN508A) ON SCHEMATIC DIAGRAM-7
CN508B
IN_L
AGND
IN_R
TUNER_9V
TUNER_GND
A9V
MUTEB
MOTOR_GND
MOTOR_9V
PCONT2
VOL_DET1
VOL_DET2
DAB_DGND
TO I SPEAKER TERMINAL CIRCUIT(CN503A) ON SCHEMATIC DIAGRAM-7
CN503B
VREF-
D5V
CD_GND
9VGND
HALT
PCONT_1
SYS6V
CD_7.5V
PGND
IC300
AN17831A
POWER AMP IC
VCC
OUT_R+
OUT_GND
OUT_R-
STBY
IN_R
IN_GND
IN_L
MUTE
OUT_L-
OUT_GND
OUT_L+
R495 3.9K
R485 8.2K
R295 3.9K
R285 8.2K
C497 3300P
C297 3300P
R251 820
C254 50V0.1
R451 820
C454 50V0.1
R491 6.8K
R492 2.7K
R291 6.8K
R292 2.7K
C493 0.047
C293 0.047
R380 2.2K
D380 B0AACK000004
FP352 5A
C374 50V10
C373 470P
C351 470P
C372 1000P
C352 1000P
R456 56K
R256 56K
C586 50V10
R586 47K
R381 10K
C368 16V22
C365 0.22
C364 0.22
C370 0.22
C376 0.22
R612 2.2
R613 2.2
R614 2.2
R615 2.2
C380 50V3.3
D382 B0EAKM000117
R382 1K
R386 1.2K
R383 100K
C382 50V10
D385 B0BC3R900006
C375 0.01
C383 50V3.3
D383 B0EAKM000117
R384 1K
R387 1.2K
R385 100K
C385 50V10
D386 B0BC3R900006
C377 0.01
VOL_DET1
VOL_DET2
IN_L
IN_R
MUTEB
VCC
PCONT2
D5V
CD_7.5V
TUNER_9V
MOTOR_9V
Q505
B1AAJC000019
REGULATOR
Q507
B1AAJC000019
REGULATOR
Q530
2SD0592ARA
REGULATOR
C515 0.01
R518 1K
C514 0.01
R520 470
R517 470
C516 0.01
C542 25V10
D508 B0BA5R600016
C540 16V22
D506 B0BA8R200005
C541 16V22
R514 2.2K
R515 1.5K
C510 25V10
D512 B0BA9R600002
Q501, Q504
B1AACF000063
SWITCH
Q504
R511 220
C507 0.01
Q503
B1BCCG000002
STABILIZER
Q503
Q501
D527
D526
D525
D525, D526, D527 B0EAKM000117
R505 100K
C502 25V10
R504 220
Q500
R501 1.2
R502 1.2
R503 1.2
VCC
SYS6V
Q500
B1GCCFGA0006
CURRENT LIMITING
D501, D502, D504, D505
D0EAMM000038
C521 0.01
D502
D504
C523 0.01
C512 0.1
C522 0.01
D501
D505
C524 0.01
C501 35V6800
AMP_VCC1
AMP_VCC2
WH505A
AMP_VCC2
AMP_VCC1
MOTOR_9V
PCONT_1
SYS6V
GND1
GND2
HALT
TO J TRANSFORMER CIRCUIT (CN505B) ON SCHEMATIC DIAGRAM-7

SA-PM33E/EB/EG POWER CIRCUIT

SCHEMATIC DIAGRAM - 5

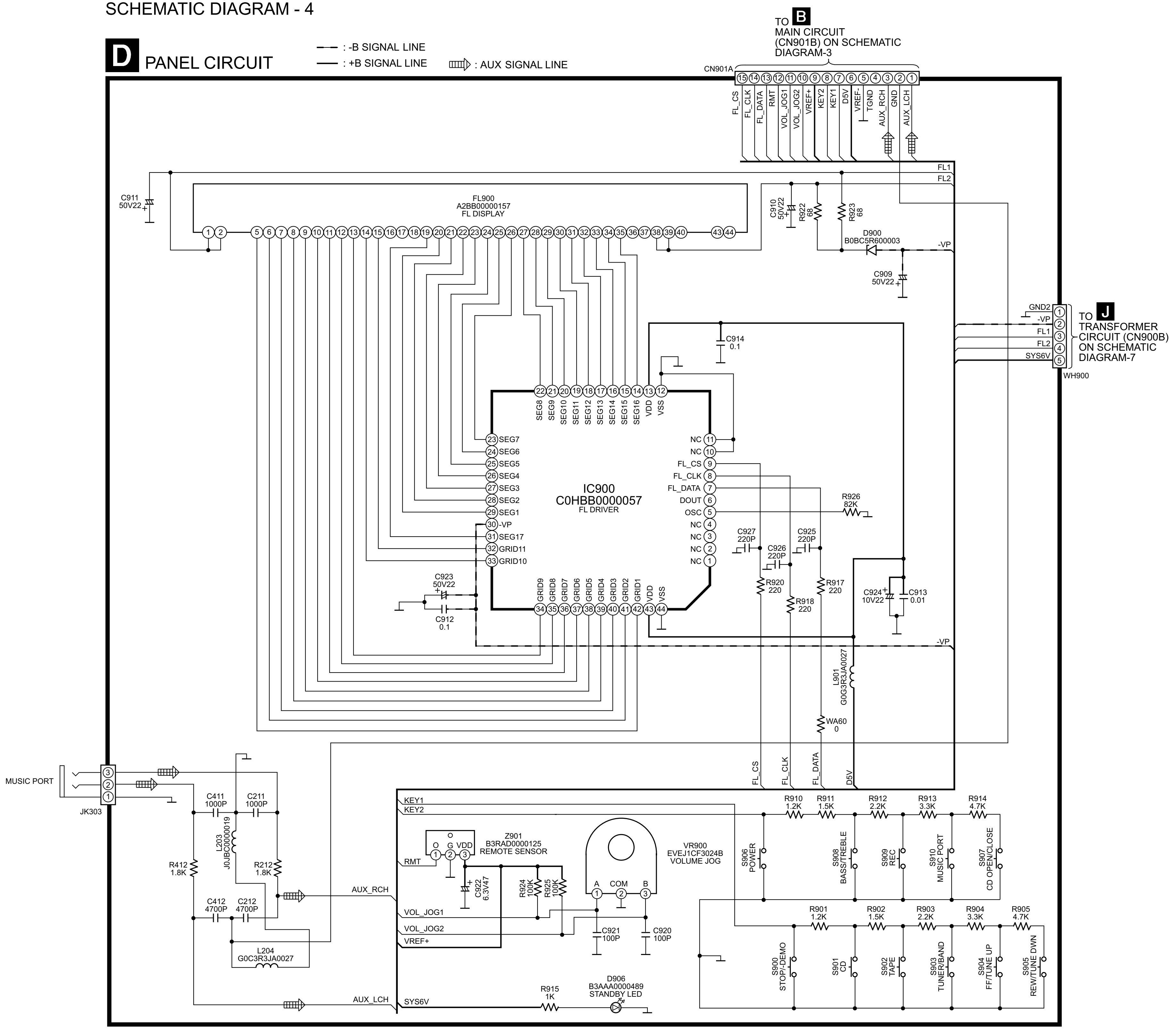
- - - - : -B SIGNAL LINE
——— : +B SIGNAL LINE
▨ TAPE PLAYBACK SIGNAL LINE
▨ TAPE RECORD SIGNAL LINE

E DECK CIRCUIT


CP1301
PBLIN
PBRIN
C1105 470P
R1103 18K
C1122 0.01
C1102 470P
C1101 50V1
R1101 27
C1104 0.027
R1104 10K
C1103 16V100
C1121 1000P
R1102 1.5K
C1106 50V2.2
C1107 1500P
C1303 0.033
C1302 0.033
R1302 330
C1123 270P
C1108 16V10
R1303 4.7M
C1304 50V4.7
C1307 10V220
IC1001
AN7326K
P/B REC AMP IC
PB Lin
PB L NF
PB L EQ
PB Lout
ALC LOW OUT
TPS GAIN ADJ
REC Lin
REC Lout
ALC
Nor/Crd SW
Vcc
PB AMP (L)
PB AMP (R)
Mute
TPS
REC AMP (L)
REC AMP (R)
NOR/Chro LOGIC
REC/PB LOGIC
RIPPLE REJECTION
PB Rin
PB R NF
PB R EQ
PB Rout
TPS Out
REC Rin
REC Rout
PB/REC SW
RF
GND
C1221 1000P
C1207 1500P
C1206 50V2.2
C1301 50V0.1
C1371 0.01
C1223 270P
R1304 22K
C1308 16V22
C1305 16V33
C1201 50V1
C1203 16V100
R1202 1.5K
C1204 0.027
R1204 10K
R1201 27
C1208 16V10
R1305 10K
R1307 22
R1308 22
WA1061 0
R1203 18K
C1202 470P
C1205 470P
C1222 0.01
IC1000
C1AA00000612
ANALOG SWITCH IC
H=OFF
VCC
L1302
G0C470JA0052
RECH1
C1324 16V47
R1338 4.7K
R1334 22K
C1323 50V1
R1333 4.7
Q1317
B1ABGC000005
BEAT PROOF LEVEL SWITCH
C1316 1000P
Q1309
R1329 4.7K
R1328 15K
C1312 3300P
Q1309, Q1310
B1AAGC000006
BIAS SWITCH
L1301
G2ZZ00000024
C1321 4700P
C1318 0.047
R1330 4.7
Q1310
R1327 4.7K
C1319 16V100
C1317 1000P
R1335 1.5K
C1314 2200P
C1315 2200P
D1301
B0ACCK000005
R1332 10K
Q1312
B1ABCF000011
SWITCH
R1337 10K
C1320 50V1
R1331 7.5K
C1311 16V47
R1105 2.2K
R1109 1K
C1110 6800P
R1106 100K
Q1101
R1107 1K
Q1101, Q1201
B1ABGC000005
MUTING SWITCH
R1205 2.2K
R1209 1K
C1210 6800P
R1206 100K
Q1201
R1207 1K
C1109 50V3.3
C1209 50V3.3
R1313 10K
C1310 50V0.1
Q1302
B1GDCFJJ0002
DECK MUTING SWITCH
R1309 470
R1110 33K
R1210 33K
Q1304
B1GDCFGH0002
SWITCH (RECH)
R1371 22K
R1401 12K
AN6
R1318 10K
VREF+
R1403 10K
R1404 22K
AN7
VREF-
R1405 10K
R1402 270K
PHOTO
Q1303
B1GBCFGH0001
SWITCH
R1314 1K
RECH
CN1303
9VGND
RECH
9V
DMT
PHOTO
REC_RIN
TAPE_EJECT
REC_LIN
VREF-
AGND
VREF+
PB_ROUT
AN7
PB_LOUT
AN6
MOTOR_9V
PL_L
MOTOR_GND
MOTOR_L
TO B MAIN CIRCUIT (CN804) ON SCHEMATIC DIAGRAM-2
CP1902
PLVCC
GND2
PHOTO
VREF+
VREF-
CS971
MODE
HALF
PL
PL_GND
PHOTO_T
RECINH_F
VREF+
CR02
D971
MA2C16500E
S971 (MODE)
S972 (HALF)
S975 (REC_INH_F)
S973 (CR02)
R972 820
R973 39K
IC971
CNB13030R2AU
PHOTO INTERRUPTOR
Q1315
R1344 27K
C1326 16V10
Q1314
R1342 47K
R1343 3.3K
R1345 1K
R1341 470
R1374 470
Q1316
2SD09650RA
SWITCH
Q1314
B1GDCFGH0002
MOTOR SUPPLY SWITCH
Q1315
B1ACKD000006
SWITCH
JW1903
JW308B
JW308A
S1000
TAPE EJECT
F DECK MECHANISM CIRCUIT
G TAPE EJECT CIRCUIT

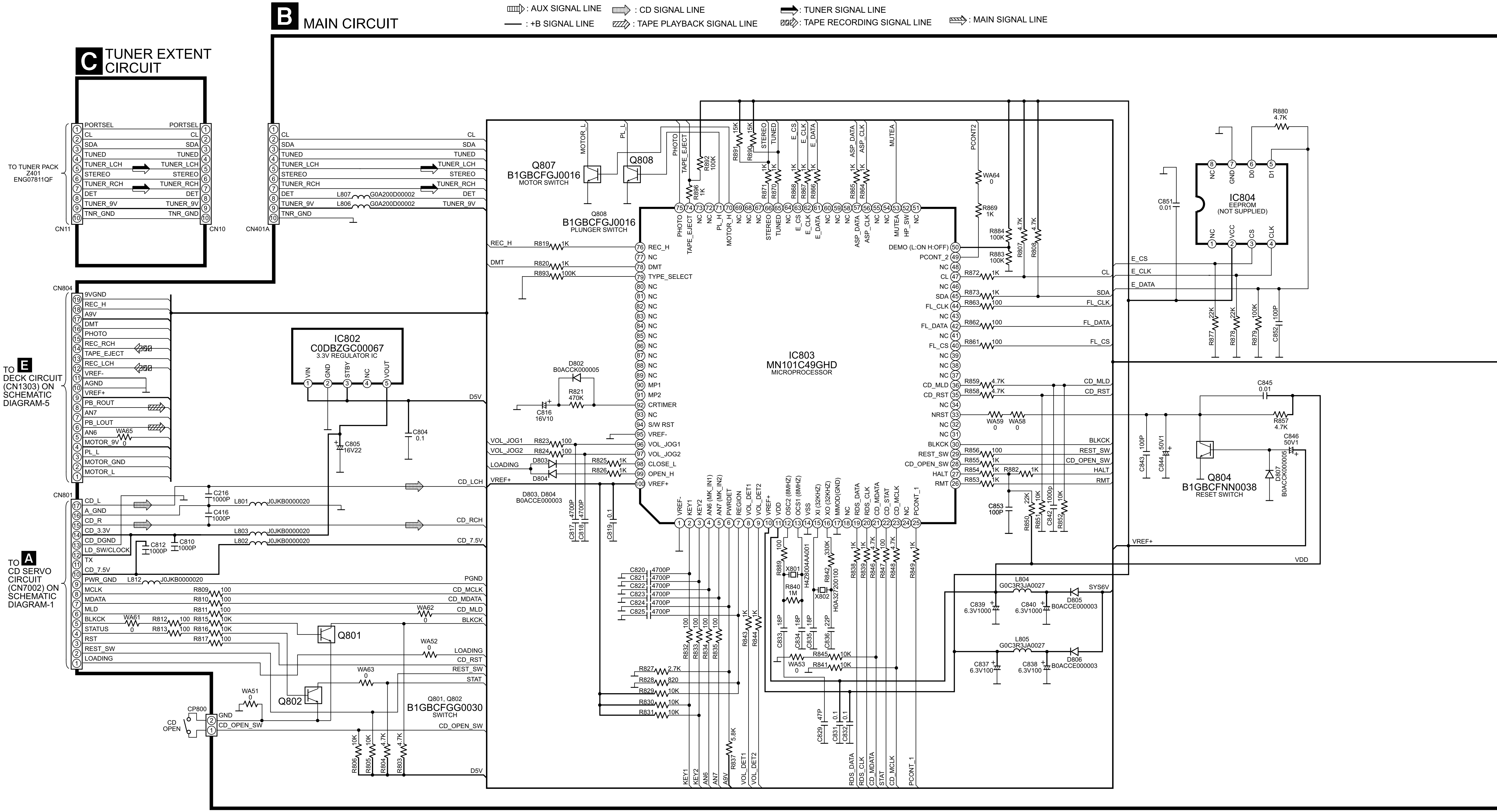
SA-PM33E/EB/EG DECK / DECK MECHANISM / TAPE EJECT CIRCUIT

SCHEMATIC DIAGRAM - 4


D PANEL CIRCUIT
: -B SIGNAL LINE
: +B SIGNAL LINE
: AUX SIGNAL LINE
TO B MAIN CIRCUIT (CN901B) ON SCHEMATIC DIAGRAM-3
CN901A
FL_CS
FL_CLK
FL_DATA
RMT
VOL_JOG1
VOL_JOG2
VREF+
KEY2
KEY1
D5V
VREF-
TGND
AUX_RCH
GND
AUX_LCH
FL1
FL2
C911 50V22
FL900 A2BB00000157 FL DISPLAY
C910 50V22
R922 68
R923 68
D900 B0BC5R600003
-VP
C909 50V22
TO J TRANSFORMER CIRCUIT (CN900B) ON SCHEMATIC DIAGRAM-7
GND2
-VP
FL1
FL2
SYS6V
WH900
C914 0.1
IC900 C0HBB0000057 FL DRIVER
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
VDD
VSS
SEG7
SEG6
SEG5
SEG4
SEG3
SEG2
SEG1
-VP
SEG17
GRID11
GRID10
NC
FL_CS
FL_CLK
FL_DATA
DOUT
OSC
GRID9
GRID8
GRID7
GRID6
GRID5
GRID4
GRID3
GRID2
GRID1
R926 82K
C927 220P
C926 220P
C925 220P
R920 220
R918 220
R917 220
C924 10V22
C913 0.01
C923 50V22
C912 0.1
L901 G0G3R3JA0027
WA60 0
FL_CS
FL_CLK
FL_DATA
D5V
MUSIC PORT
JK303
C411 1000P
C211 1000P
L203 J0JBC000019
R412 1.8K
R212 1.8K
C412 4700P
C212 4700P
L204 G0C3R3JA0027
AUX_RCH
AUX_LCH
KEY1
KEY2
RMT
VOL_JOG1
VOL_JOG2
VREF+
SYS6V
Z901 B3RAD0000125 REMOTE SENSOR
O G VDD
C922 6.3V47
R924 100K
R925 100K
VR900 EVEJ1CF3024B VOLUME JOG
A COM B
C921 100P
C920 100P
R915 1K
D906 B3AAA0000489 STANDBY LED
R910 1.2K
R911 1.5K
R912 2.2K
R913 3.3K
R914 4.7K
S906 POWER
S908 BASS/TREBLE
S909 REC
S910 MUSIC PORT
S907 CD OPEN/CLOSE
R901 1.2K
R902 1.5K
R903 2.2K
R904 3.3K
R905 4.7K
S900 STOP/-DEMO
S901 CD
S902 TAPE
S903 TUNER/BAND
S904 FF/TUNE UP
S905 REW/TUNE DWN

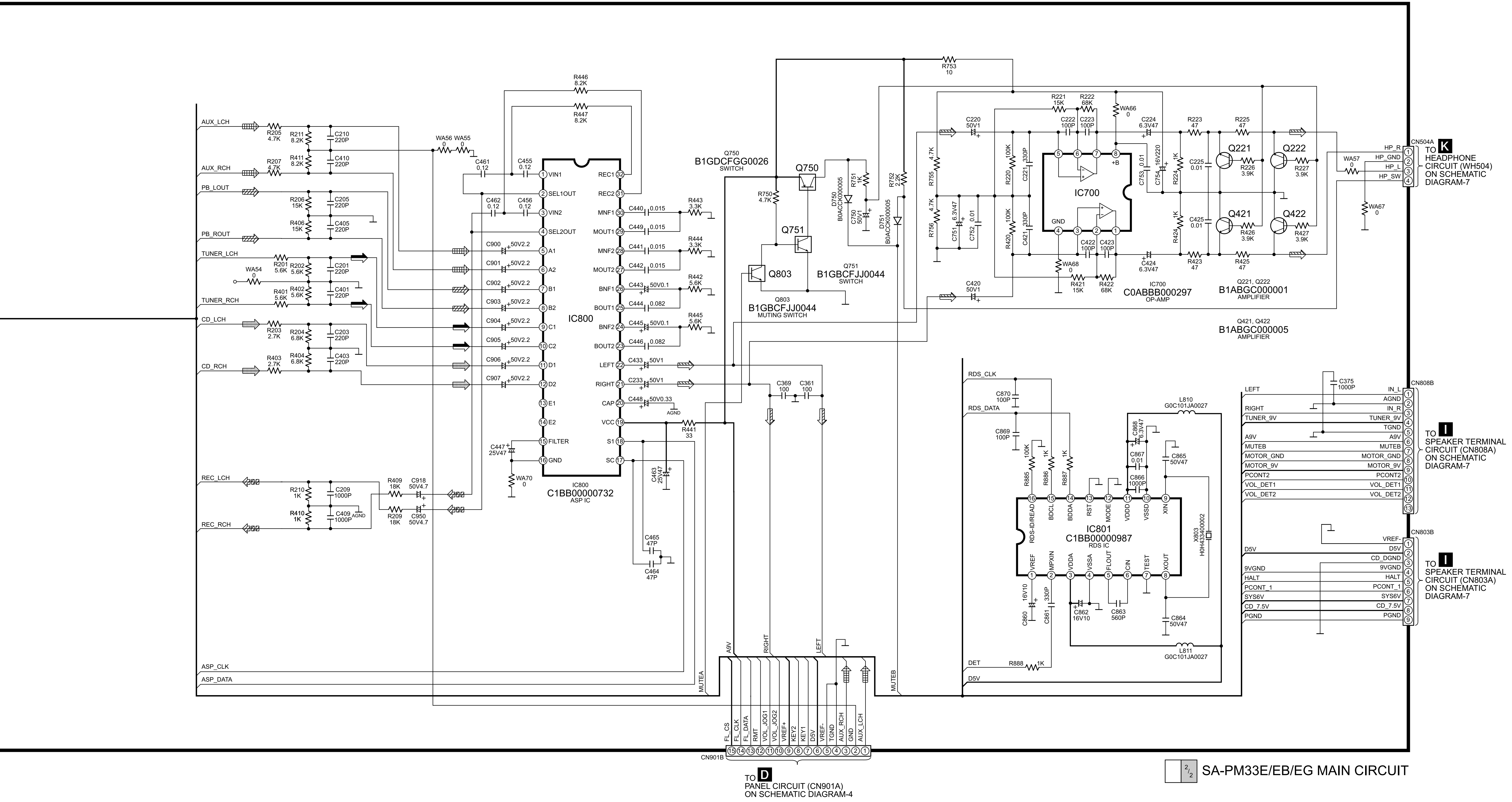
SA-PM33E/EB/EG PANEL CIRCUIT

SCHEMATIC DIAGRAM - 2


: AUX SIGNAL LINE
: CD SIGNAL LINE
: TUNER SIGNAL LINE
: +B SIGNAL LINE
: TAPE PLAYBACK SIGNAL LINE
: TAPE RECORDING SIGNAL LINE
: MAIN SIGNAL LINE
B MAIN CIRCUIT
C TUNER EXTENT CIRCUIT
TO TUNER PACK Z401 ENG07811QF
CN11
CN10
CN401A
PORTSEL
CL
SDA
TUNED
TUNER_LCH
STEREO
TUNER_RCH
DET
TUNER_9V
TNR_GND
L807 G0A200D00002
L806 G0A200D00002
Q807 B1GBCFGJ0016 MOTOR SWITCH
Q808 B1GBCFGJ0016 PLUNGER SWITCH
IC803 MN101C49GHD MICROPROCESSOR
IC804 EEPROM (NOT SUPPLIED)
IC802 C0DBZGC00067 3.3V REGULATOR IC
VIN
GND
STBY
NC
VOUT
D802 B0ACCK000005
R821 470K
C816 16V10
C805 16V22
C804 0.1
D5V
CN804
TO E DECK CIRCUIT (CN1303) ON SCHEMATIC DIAGRAM-5
9VGND
REC_H
A9V
DMT
PHOTO
REC_RCH
TAPE_EJECT
REC_LCH
VREF-
AGND
VREF+
PB_ROUT
AN7
PB_LOUT
AN6
WA65 0
MOTOR_9V
PL_L
MOTOR_GND
MOTOR_L
CN801
TO A CD SERVO CIRCUIT (CN7002) ON SCHEMATIC DIAGRAM-1
CD_L
A_GND
CD_R
CD_3.3V
CD_DGND
LD_SW/CLOCK
TX
CD_7.5V
PWR_GND
MCLK
MDATA
MLD
BLKCK
STATUS
RST
REST_SW
LOADING
C216 1000P
C416 1000P
L801 J0JKB0000020
L803 J0JKB0000020
L802 J0JKB0000020
L812 J0JKB0000020
C812 1000P
C810 1000P
CD_LCH
CD_RCH
CD_7.5V
PGND
CD_MCLK
CD_MDATA
CD_MLD
STAT
CD_RST
CD_OPEN_SW
R809 100
R810 100
R811 100
R815 10K
R816 10K
R817 100
R812 100
R813 100
WA61 0
WA62 0
WA52 0
WA63 0
WA51 0
Q801
Q802
Q801, Q802 B1GBCFGG0030 SWITCH
CP800
CD OPEN
R806 10K
R805 10K
R804 4.7K
R803 4.7K
REC_H
DMT
R819 1K
R820 1K
R893 100K
VOL_JOG1
VOL_JOG2
LOADING
VREF+
R823 100
R824 100
D803
D804
D803, D804 B0ACCE000003
R825 1K
R826 1K
C817 4700P
C818 4700P
C819 0.1
76 REC_H
77 NC
78 DMT
79 TYPE_SELECT
80 NC
81 NC
82 NC
83 NC
84 NC
85 NC
86 NC
87 NC
88 NC
89 NC
90 MP1
91 MP2
92 CRTIMER
93 NC
94 S/W RST
95 VREF-
96 VOL_JOG1
97 VOL_JOG2
98 CLOSE_L
99 OPEN_H
100 VREF+
75 PHOTO
74 TAPE_EJECT
73 NC
72 NC
71 PL_H
70 MOTOR_H
69 NC
68 NC
67 NC
66 STEREO
65 TUNED
64 NC
63 E_CS
62 E_CLK
61 E_DATA
60 NC
59 NC
58 NC
57 ASP_DATA
56 ASP_CLK
55 NC
54 NC
53 MUTEA
52 HP_SW
51 NC
50 DEMO (L:ON H:OFF)
49 PCONT_2
48 NC
47 CL
46 NC
45 SDA
44 FL_CLK
43 NC
42 FL_DATA
41 NC
40 FL_CS
39 NC
38 NC
37 NC
36 CD_MLD
35 CD_RST
34 NC
33 NRST
32 NC
31 NC
30 BLKCK
29 REST_SW
28 CD_OPEN_SW
27 HALT
26 RMT
1 VREF-
2 KEY1
3 KEY2
4 AN6 (MK_IN1)
5 AN7 (MK_IN2)
6 PWRDET
7 REGION
8 VOL_DET1
9 VOL_DET2
10 VREF+
11 VDD
12 OSC2 (8MHZ)
13 OCS1 (8MHZ)
14 VSS
15 XI (32KHZ)
16 XO (32KHZ)
17 MMOD(GND)
18 NC
19 RDS_DATA
20 RDS_CLK
21 CD_MDATA
22 CD_STAT
23 CD_MCLK
24 NC
25 PCONT_1
MOTOR_L
PL_L
PHOTO
TAPE_EJECT
R896 1K
R892 100K
R891 15K
R890 15K
STEREO
TUNED
R871 1K
R870 1K
E_CS
E_CLK
E_DATA
R868 1K
R867 1K
R866 1K
ASP_DATA
ASP_CLK
R865 1K
R864 1K
MUTEA
PCONT2
WA64 0
R869 1K
R884 100K
R883 100K
R807 4.7K
R808 4.7K
R872 1K
R873 1K
R863 100
R862 100
R861 100
FL_CLK
FL_DATA
FL_CS
R859 4.7K
R858 4.7K
WA59 0
WA58 0
R856 100
R855 1K
R854 1K
R882 1K
R853 1K
C853 100P
R850 22K
R851 10K
C842 1000P
R852 10K
R880 4.7K
NC
GND
D0
D1
VCC
CS
CLK
C851 0.01
E_CS
E_CLK
E_DATA
R877 22K
R878 22K
R879 100K
C852 100P
C845 0.01
R857 4.7K
C843 100P
C844 50V1
C846 50V1
Q804 B1GBCFNN0038 RESET SWITCH
D807 B0ACCK000005
VREF+
VDD
SYS6V
L804 G0C3R3JA0027
D805 B0ACCE000003
C839 6.3V1000
C840 6.3V1000
L805 G0C3R3JA0027
D806 B0ACCE000003
C837 6.3V100
C838 6.3V100
C820 4700P
C821 4700P
C822 4700P
C823 4700P
C824 4700P
C825 4700P
R832 100
R833 100
R834 100
R835 100
R843 1K
R844 1K
R827 2.7K
R828 820
R829 10K
R830 10K
R831 10K
R837 5.8K
R889 100
X801 H4280044A001
R840 1M
X802 H0A327200100
R842 330K
C833 18P
C834 18P
C835 18P
C836 22P
WA53 0
R845 10K
R841 10K
C829 47P
C831 0.1
C832 0.1
R838 1K
R839 1K
R846 4.7K
R847 100
R848 4.7K
R849 1K
KEY1
KEY2
AN6
AN7
A9V
VOL_DET1
VOL_DET2
RDS_DATA
RDS_CLK
CD_MDATA
STAT
CD_MCLK
PCONT_1

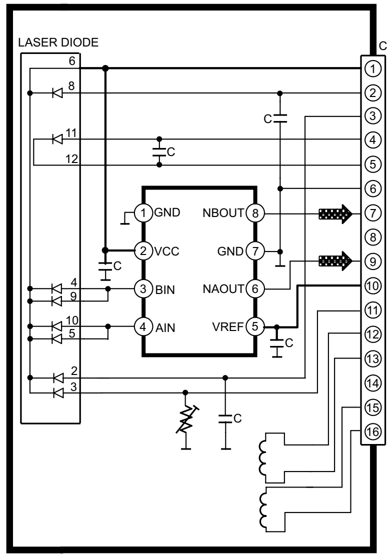
B MAIN CIRCUIT

- ⇨ : AUX SIGNAL LINE
- — : +B SIGNAL LINE
- ⇨ : CD SIGNAL LINE
- ⇨ : TAPE PLAYBACK SIGNAL LINE
- ➡ : TUNER SIGNAL LINE
- ⇦ : TAPE RECORDING SIGNAL LINE
- ⇨ : MAIN SIGNAL LINE


AUX_LCH
AUX_RCH
PB_LOUT
PB_ROUT
TUNER_LCH
TUNER_RCH
CD_LCH
CD_RCH
REC_LCH
REC_RCH
ASP_CLK
ASP_DATA
MUTEA
MUTEB
R205 4.7K
R211 8.2K
C210 220P
R207 4.7K
R411 8.2K
C410 220P
R206 15K
C205 220P
R406 15K
C405 220P
R201 5.6K
R202 5.6K
C201 220P
WA54 0
R401 5.6K
R402 5.6K
C401 220P
R203 2.7K
R204 6.8K
C203 220P
R403 2.7K
R404 6.8K
C403 220P
R210 1K
C209 1000P
R410 1K
C409 1000P
AGND
R409 18K
C918 50V4.7
R209 18K
C950 50V4.7
WA56 0
WA55 0
R446 8.2K
R447 8.2K
C461 0.12
C455 0.12
C462 0.12
C456 0.12
C900 50V2.2
C901 50V2.2
C902 50V2.2
C903 50V2.2
C904 50V2.2
C905 50V2.2
C906 50V2.2
C907 50V2.2
IC800
1 VIN1
2 SEL1OUT
3 VIN2
4 SEL2OUT
5 A1
6 A2
7 B1
8 B2
9 C1
10 C2
11 D1
12 D2
13 E1
14 E2
15 FILTER
16 GND
32 REC1
31 REC2
30 MNF1
29 MOUT1
28 MNF2
27 MOUT2
26 BNF1
25 BOUT1
24 BNF2
23 BOUT2
22 LEFT
21 RIGHT
20 CAP
19 VCC
18 S1
17 SC
C447 25V47
WA70 0
IC800
C1BB00000732
ASP IC
C440 0.015
C449 0.015
C441 0.015
C442 0.015
C443 50V0.1
C444 0.082
C445 50V0.1
C446 0.082
C433 50V1
C233 50V1
C448 50V0.33
AGND
R443 3.3K
R444 3.3K
R442 5.6K
R445 5.6K
R441 33
C463 25V47
C465 47P
C464 47P
C369 100
C361 100
Q750
B1GDCFGG0026
SWITCH
Q750
R750 4.7K
Q751
Q751
B1GBCFJJ0044
SWITCH
Q803
Q803
B1GBCFJJ0044
MUTING SWITCH
D750 B0ACCK000005
R751 1K
C750 50V1
D751 B0ACCK000005
R752 2.2K
R753 10
R755 4.7K
R756 4.7K
C751 6.3V47
C752 0.01
C220 50V1
C420 50V1
R220 100K
C221 330P
R420 100K
C421 330P
R221 15K
R222 68K
C222 100P
C223 100P
WA66 0
IC700
+B
GND
C422 100P
C423 100P
WA68 0
R421 15K
R422 68K
IC700
C0ABBB000297
OP-AMP
C224 6.3V47
C753 0.01
C754 16V220
C424 6.3V47
R224 1K
R424 1K
R223 47
R423 47
R225 47
R425 47
C225 0.01
C425 0.01
Q221
Q222
Q421
Q422
R226 3.9K
R227 3.9K
R426 3.9K
R427 3.9K
Q221, Q222
B1ABGC000001
AMPLIFIER
Q421, Q422
B1ABGC000005
AMPLIFIER
WA57 0
WA67 0
CN504A
HP_R
HP_GND
HP_L
HP_SW
TO K HEADPHONE CIRCUIT (WH504) ON SCHEMATIC DIAGRAM-7
RDS_CLK
RDS_DATA
C870 100P
C869 100P
R885 100K
R886 1K
R887 1K
C868 6.3V47
C867 0.01
C866 1000P
C865 50V47
L810
G0C101JA0027
IC801
C1BB00000987
RDS IC
1 VREF
2 MPXIN
3 VDDA
4 VSSA
5 FLOUT
6 CIN
7 TEST
8 XOUT
16 RDS-ID/READ
15 BDCL
14 BDDA
13 RST
12 MODE
11 VDDD
10 VSSD
9 XIN
X803
H0H433400002
C860 16V10
C861 330P
C862 16V10
C863 560P
C864 50V47
L811
G0C101JA0027
DET
R888 1K
D5V
C375 1000P
CN808B
LEFT
RIGHT
TUNER_9V
A9V
MUTEB
MOTOR_GND
MOTOR_9V
PCONT2
VOL_DET1
VOL_DET2
IN_L
AGND
IN_R
TUNER_9V
TGND
A9V
MUTEB
MOTOR_GND
MOTOR_9V
PCONT2
VOL_DET1
VOL_DET2
TO I SPEAKER TERMINAL CIRCUIT (CN808A) ON SCHEMATIC DIAGRAM-7
CN803B
D5V
9VGND
HALT
PCONT_1
SYS6V
CD_7.5V
PGND
VREF-
D5V
CD_DGND
9VGND
HALT
PCONT_1
SYS6V
CD_7.5V
PGND
TO I SPEAKER TERMINAL CIRCUIT (CN803A) ON SCHEMATIC DIAGRAM-7
A9V
RIGHT
LEFT
FL_CS
FL_CLK
FL_DATA
RMT
VOL_JOG1
VOL_JOG2
VREF+
KEY2
KEY1
D5V
VREF-
TGND
AUX_RCH
GND
AUX_LCH
CN901B
TO D PANEL CIRCUIT (CN901A) ON SCHEMATIC DIAGRAM-4

SCHEMATIC DIAGRAM - 1

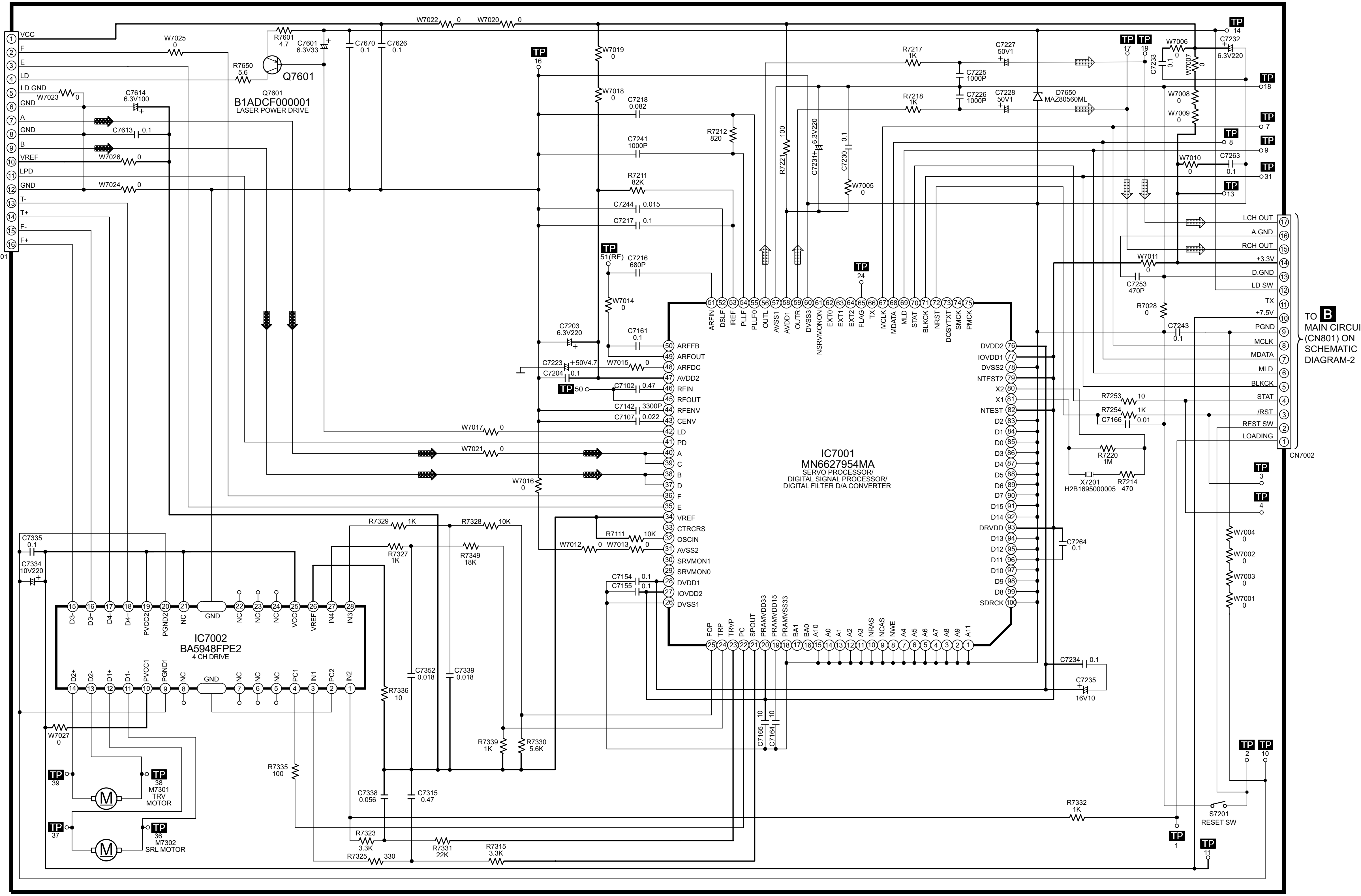
⚠ OPTICAL PICKUP CIRCUIT



LASER DIODE
CP701
GND
VCC
BIN
AIN
NBOUT
GND
NAOUT
VREF
C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

A CD SERVO CIRCUIT

— : +B SIGNAL LINE ▨ : CD-DA SIGNAL LINE ⇨ : CD SIGNAL LINE



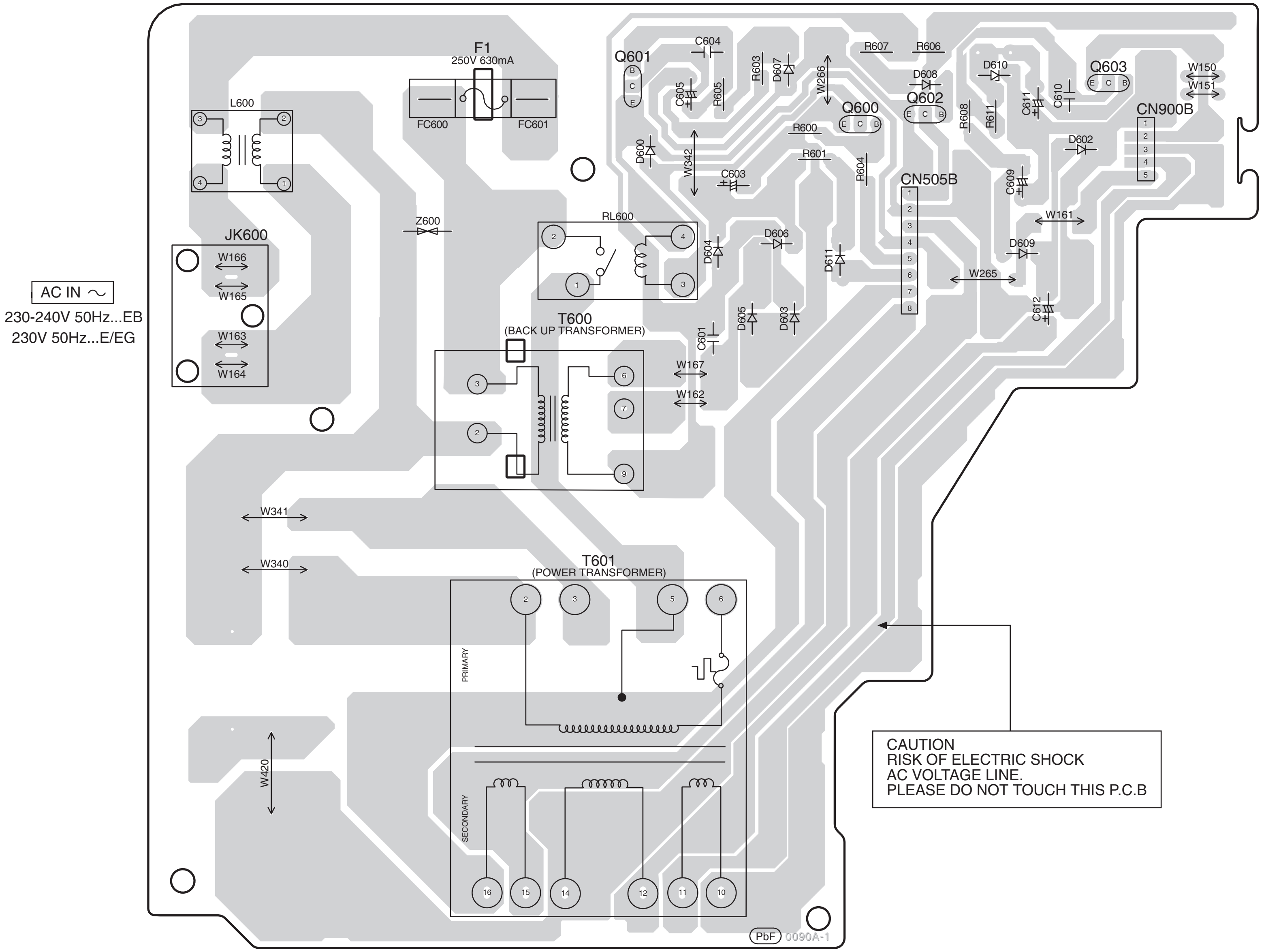
CN7001
VCC
F
E
LD
LD GND
GND
A
GND
B
VREF
LPD
GND
T-
T+
F-
F+
W7022 0
W7020 0
W7025 0
R7601 4.7
R7650 5.6
C7601 6.3V33
C7670 0.1
C7626 0.1
Q7601
Q7601 B1ADCF000001 LASER POWER DRIVE
W7023 0
C7614 6.3V100
C7613 0.1
W7026 0
W7024 0
TP 16
W7019 0
W7018 0
C7218 0.082
C7241 1000P
R7212 820
R7211 82K
C7244 0.015
C7217 0.1
TP 51(RF)
C7216 680P
W7014 0
C7203 6.3V220
C7161 0.1
C7223 50V4.7
W7015 0
C7204 0.1
TP 50
C7102 0.47
C7142 3300P
C7107 0.022
W7017 0
W7021 0
W7016 0
R7111 10K
W7012 0
W7013 0
C7154 0.1
C7155 0.1
R7217 1K
R7218 1K
C7225 1000P
C7226 1000P
C7227 50V1
C7228 50V1
D7650 MAZ80560ML
R7221 100
C7231 6.3V220
C7230 0.1
W7005 0
TP 24
TP 17
TP 19
TP 14
TP 18
TP 7
TP 8
TP 9
TP 31
TP 13
W7006 0
W7007 0
C7233 0.1
C7232 6.3V220
W7008 0
W7009 0
W7010 0
C7263 0.1
W7011 0
C7253 470P
R7028 0
C7243 0.1
R7253 10
R7254 1K
C7166 0.01
R7220 1M
X7201 H2B1695000005
R7214 470
C7264 0.1
C7234 0.1
C7235 16V10
IC7001
MN6627954MA
SERVO PROCESSOR/
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER D/A CONVERTER
ARFIN 51
DSLF 52
IREF 53
PLLF 54
PLLF0 55
OUTL 56
AVSS1 57
AVDD1 58
OUTR 59
DVSS3 60
NSRVMONON 61
EXT0 62
EXT1 63
EXT2 64
FLAG 65
TX 66
MCLK 67
MDATA 68
MLD 69
STAT 70
BLKCK 71
NRST 72
DQSYTXT 73
SMCK 74
PMCK 75
50 ARFFB
49 ARFOUT
48 ARFDC
47 AVDD2
46 RFIN
45 RFOUT
44 RFENV
43 CENV
42 LD
41 PD
40 A
39 C
38 B
37 D
36 F
35 E
34 VREF
33 CTRCRS
32 OSCIN
31 AVSS2
30 SRVMON1
29 SRVMON0
28 DVDD1
27 IOVDD2
26 DVSS1
DVDD2 76
IOVDD1 77
DVSS2 78
NTEST2 79
X2 80
X1 81
NTEST 82
D2 83
D1 84
D0 85
D3 86
D4 87
D5 88
D6 89
D7 90
D15 91
D14 92
DRVDD 93
D13 94
D12 95
D11 96
D10 97
D9 98
D8 99
SDRCK 100
FOP 25
TRP 24
TRVP 23
PC 22
SPOUT 21
PRAMVDD33 20
PRAMVDD15 19
PRAMVSS33 18
BA1 17
BA0 16
A10 15
A0 14
A1 13
A2 12
A3 11
NRAS 10
NCAS 9
NWE 8
A4 7
A5 6
A6 5
A7 4
A8 3
A9 2
A11 1
CN7002
LCH OUT 17
A.GND 16
RCH OUT 15
+3.3V 14
D.GND 13
LD SW 12
TX 11
+7.5V 10
PGND 9
MCLK 8
MDATA 7
MLD 6
BLKCK 5
STAT 4
/RST 3
REST SW 2
LOADING 1
TO B MAIN CIRCUIT (CN801) ON SCHEMATIC DIAGRAM-2
TP 3
TP 4
W7004 0
W7002 0
W7003 0
W7001 0
TP 2
TP 10
S7201 RESET SW
R7332 1K
TP 1
TP 11
C7335 0.1
C7334 10V220
IC7002
BA5948FPE2
4 CH DRIVE
D3- 15
D3+ 16
D4- 17
D4+ 18
PVCC2 19
PGND2 20
NC 21
GND
NC 22
NC 23
NC 24
VCC 25
VREF 26
IN4 27
IN3 28
D2+ 14
D2- 13
D1+ 12
D1- 11
PVCC1 10
PGND1 9
NC 8
NC 7
NC 6
NC 5
PC1 4
IN1 3
PC2 2
IN2 1
R7329 1K
R7328 10K
R7327 1K
R7349 18K
C7352 0.018
C7339 0.018
R7336 10
R7339 1K
R7330 5.6K
R7335 100
C7338 0.056
C7315 0.47
R7323 3.3K
R7325 330
R7331 22K
R7315 3.3K
C7165 10
C7164 10
W7027 0
TP 39
TP 38
M7301 TRV MOTOR
TP 37
TP 36
M7302 SRL MOTOR
M

SA-PM33E/EB/EG CD SERVO CIRCUIT

A B C D E F G H I J K L M N O P

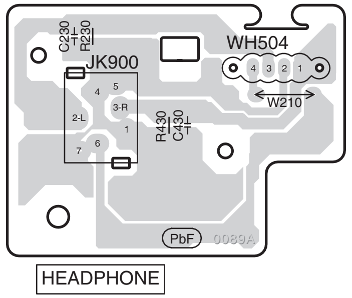
1 2 3 4 5 6 7 8 9

J TRANSFORMER P.C.B (REPV0090A)

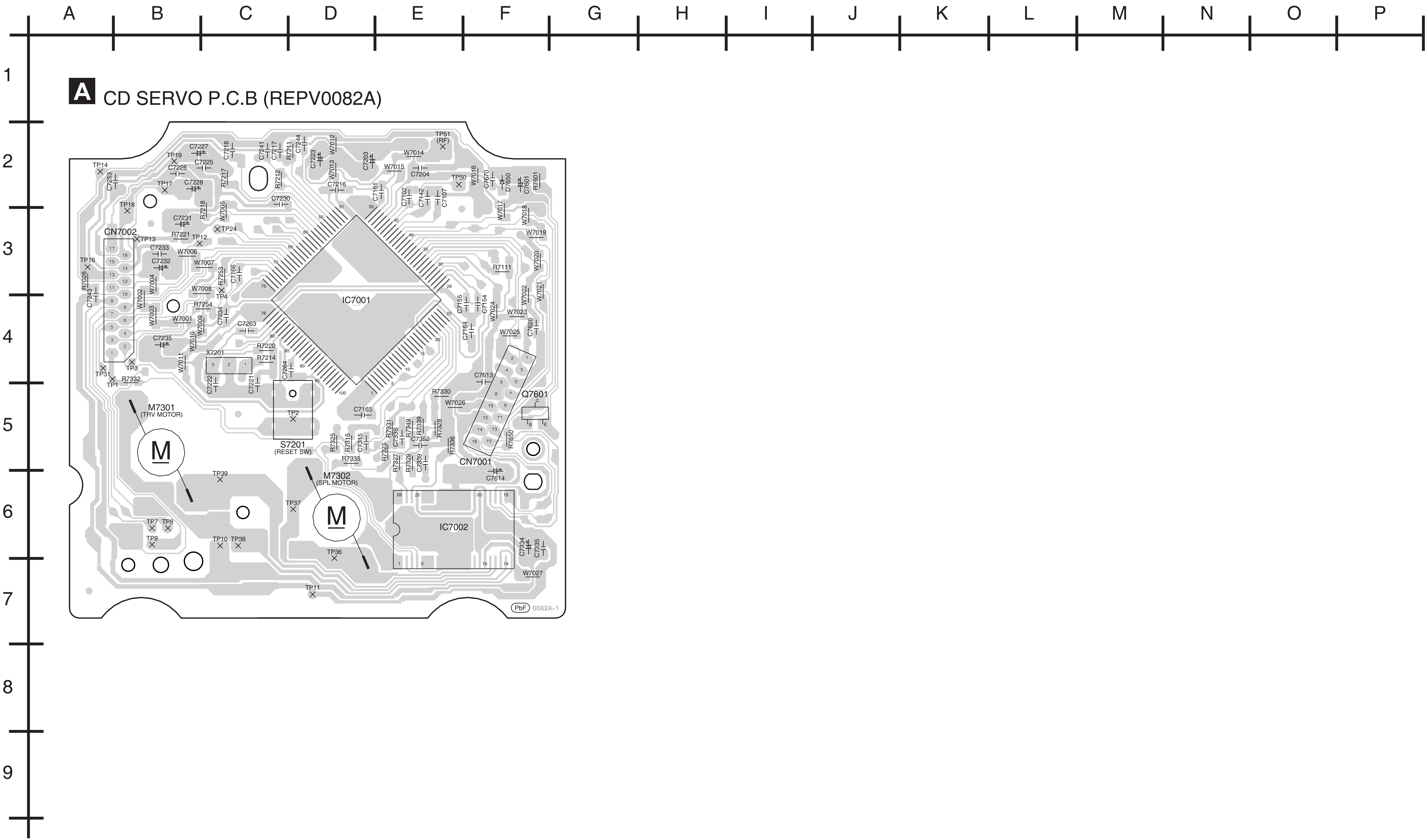

AC IN ∼
230-240V 50Hz...EB
230V 50Hz...E/EG
F1
250V 630mA
FC600
FC601
L600
JK600
W166
W165
W163
W164
Z600
Q601
C604
R603
D607
W266
R607
R606
D608
Q600
Q602
D610
R608
R611
C611
C610
Q603
W150
W151
CN900B
C605
R605
R600
R601
R604
D600
W342
C603
CN505B
D602
C609
W161
RL600
D604
D606
D611
D609
W265
C612
D605
D603
T600
(BACK UP TRANSFORMER)
C601
W167
W162
W341
W340
T601
(POWER TRANSFORMER)
PRIMARY
SECONDARY
W420
PbF
0090A-1

CAUTION
RISK OF ELECTRIC SHOCK
AC VOLTAGE LINE.
PLEASE DO NOT TOUCH THIS P.C.B

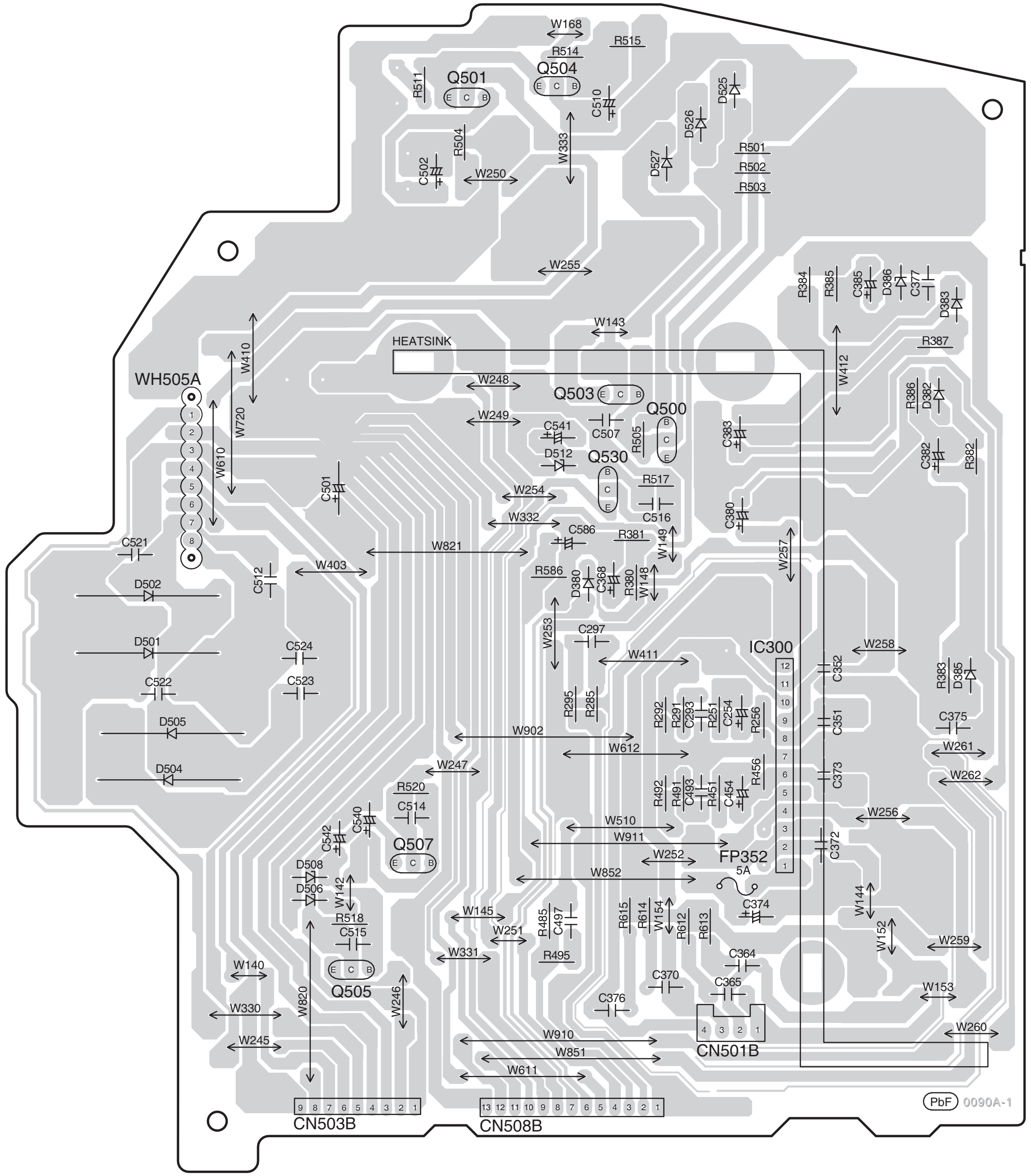
K HEADPHONE P.C.B (REPV0089A)


C230
R230
JK900
WH504
W210
R430
C430
PbF
0089A
HEADPHONE

A CD SERVO P.C.B (REPV0082A)

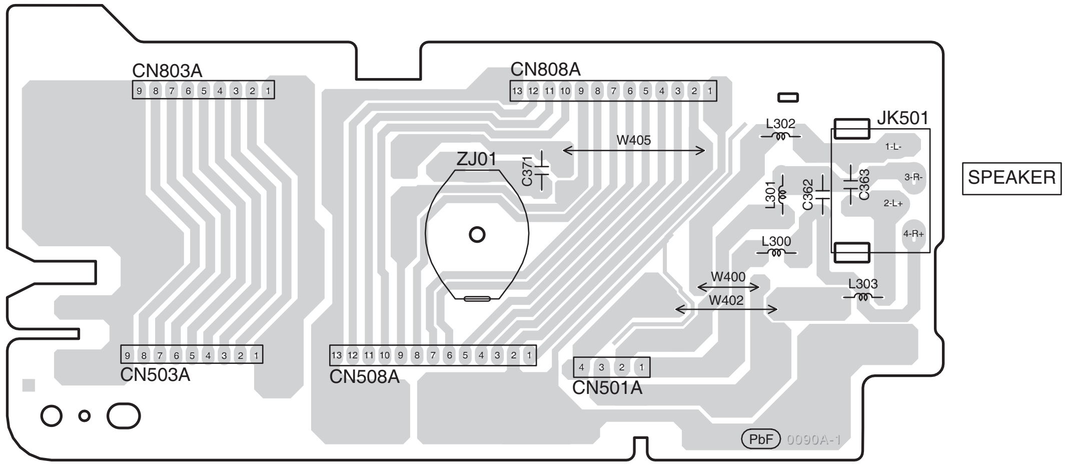

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9
IC7001
IC7002
CN7001
CN7002
Q7601
X7201
S7201
(RESET SW)
M7301
(TRV MOTOR)
M7302
(SPL MOTOR)
M
TP1
TP2
TP3
TP4
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP16
TP17
TP18
TP19
TP24
TP31
TP36
TP37
TP38
TP39
TP50
TP51
(RF)
C7102
C7107
C7142
C7154
C7155
C7161
C7164
C7165
C7166
C7203
C7204
C7216
C7217
C7218
C7221
C7222
C7223
C7225
C7226
C7227
C7228
C7230
C7231
C7232
C7233
C7234
C7235
C7241
C7243
C7244
C7253
C7263
C7264
C7315
C7334
C7335
C7338
C7339
C7352
C7601
C7613
C7614
C7626
C7670
D7650
R7028
R7111
R7211
R7212
R7214
R7217
R7218
R7220
R7221
R7253
R7254
R7315
R7323
R7325
R7327
R7328
R7329
R7330
R7331
R7332
R7335
R7336
R7339
R7349
R7601
R7650
W7001
W7002
W7003
W7004
W7005
W7006
W7007
W7008
W7009
W7010
W7011
W7012
W7013
W7014
W7015
W7016
W7017
W7018
W7019
W7020
W7021
W7022
W7023
W7024
W7025
W7026
W7027
PbF
0082A-1

H POWER P.C.B (REPV0090A)



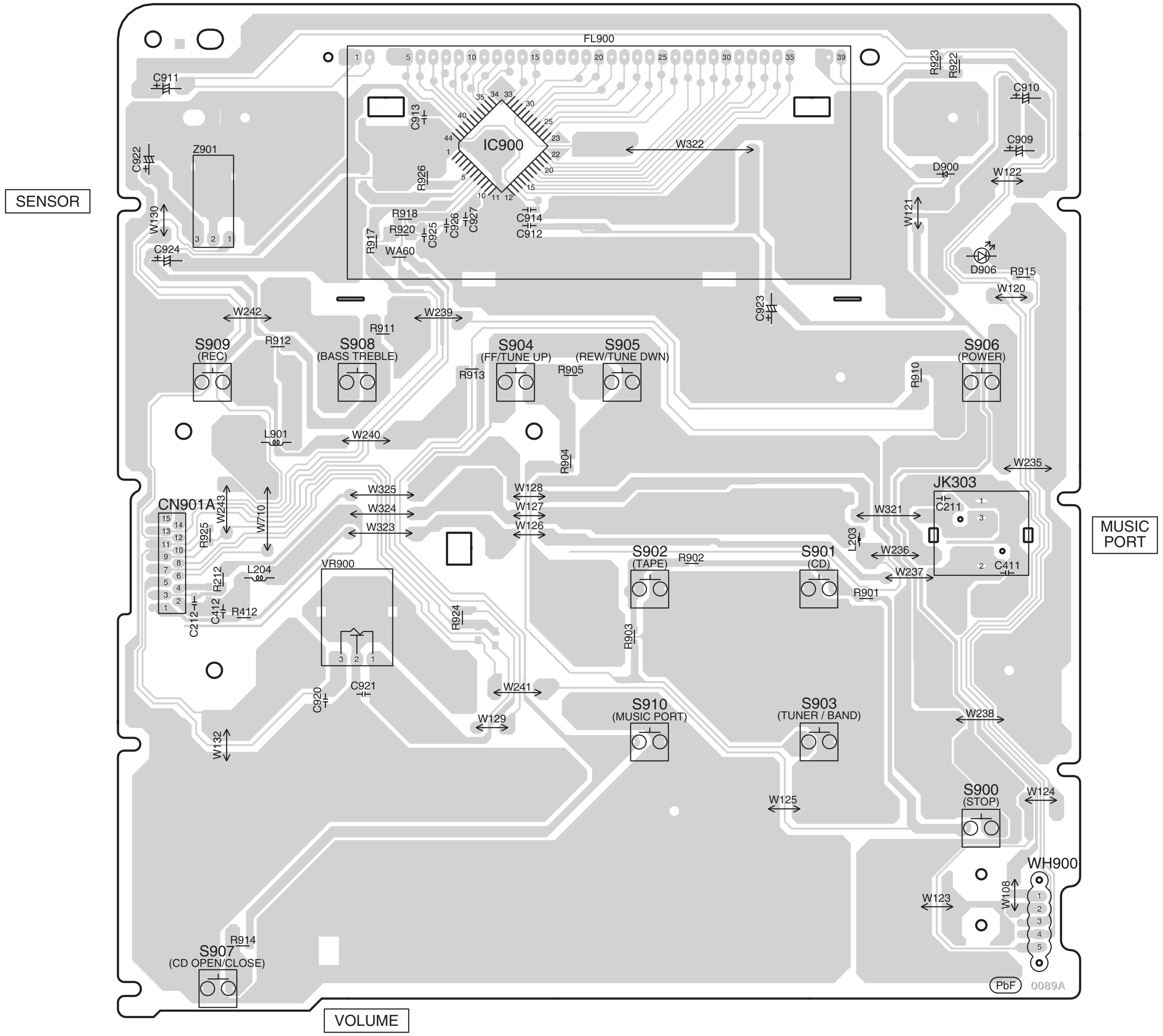
WH505A
Q501
Q504
Q503
Q500
Q530
Q507
Q505
IC300
FP352
5A
HEATSINK
CN503B
CN508B
CN501B
W168
R514
R515
R511
R504
C502
W250
C510
W333
D525
D526
D527
R501
R502
R503
W255
W143
R384
R385
C385
D386
C377
D383
R387
W412
R386
D382
C382
R382
C383
C380
W410
W720
W610
C501
C521
D502
D501
C522
D505
D504
C512
W403
C524
C523
W248
W249
C541
C507
R505
D512
R517
C516
W254
W332
C586
R381
W821
R586
D380
C368
R380
W149
W148
W257
W253
C297
W411
R295
R285
R292
R291
C293
R251
C254
R256
C352
C351
C373
C372
W258
R383
D385
C375
W261
W262
W902
W612
W247
R520
C514
C540
C542
D508
D506
W142
R518
C515
R492
R491
C493
R451
C454
R456
W510
W911
W256
W252
W852
C374
W144
W152
W259
W145
W251
R485
C497
R495
W331
R615
R614
W154
R612
R613
C364
C365
C370
C376
W153
W260
W140
W330
W820
W246
W245
W910
W851
W611
PbF
0090A-1

I SPEAKER TERMINAL P.C.B (REPV0090A)

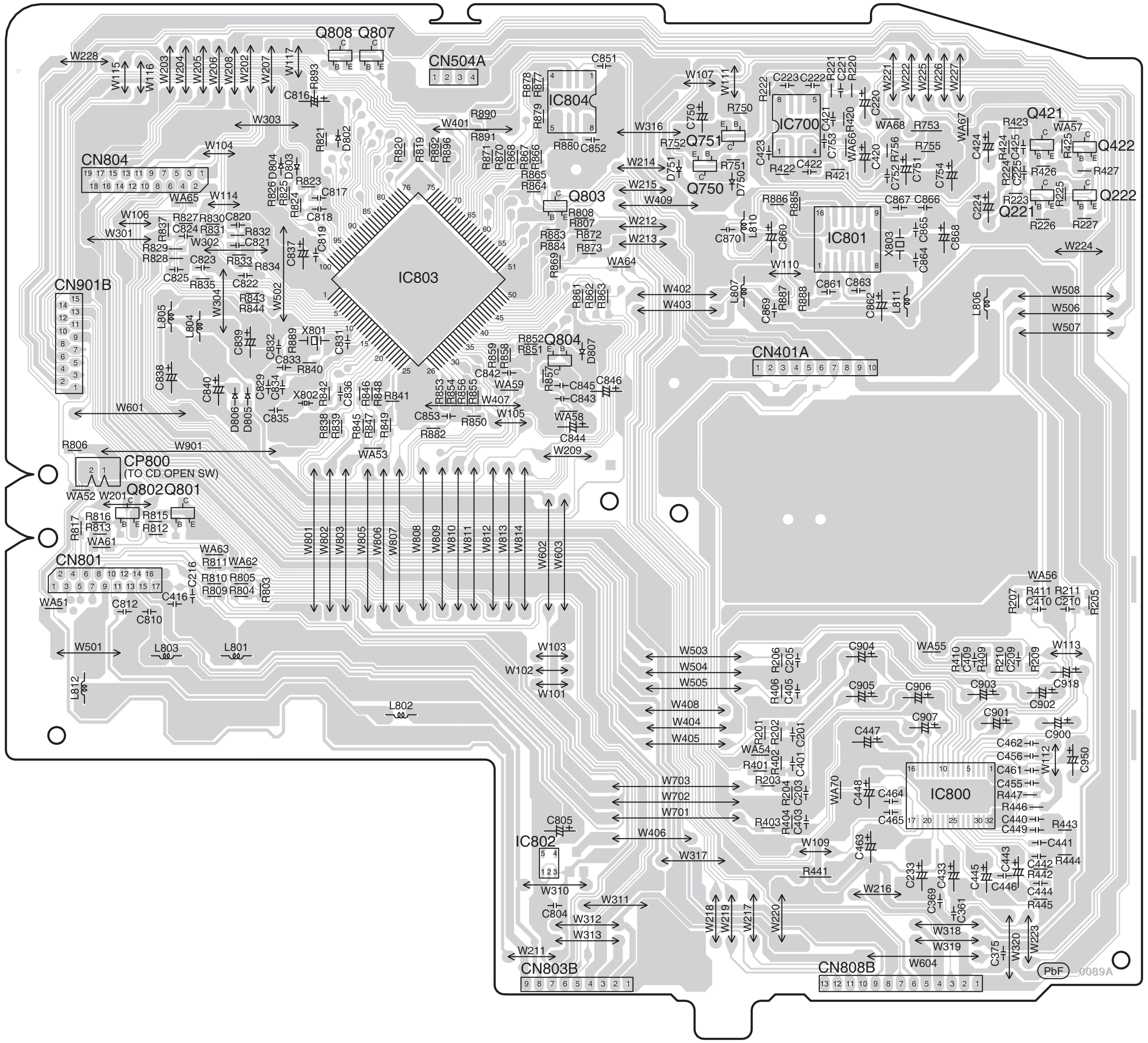


CN803A
CN808A
ZJ01
C371
W405
L302
JK501
SPEAKER
L301
C362
C363
L300
W400
W402
L303
CN503A
CN508A
CN501A
PbF
0090A-1

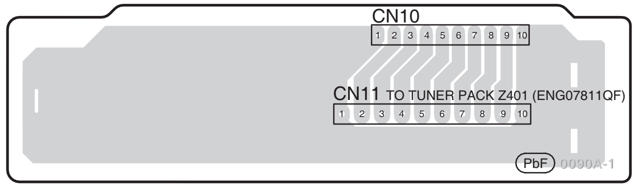
D PANEL P.C.B (REPV0089A)


SENSOR
MUSIC PORT
VOLUME
FL900
IC900
Z901
C911
C922
C913
C910
C909
R923
R922
D900
W122
W121
W130
C924
R926
R918
R920
C925
C926
C927
C914
C912
R917
WA60
W322
D906
R915
W120
C923
W242
W239
R911
S909
(REC)
R912
S908
(BASS TREBLE)
S904
(FF/TUNE UP)
S905
(REW/TUNE DWN)
R913
R905
S906
(POWER)
R910
L901
W240
R904
W235
JK303
C211
C411
W325
W324
W323
W128
W127
W126
W321
L203
W236
W237
CN901A
W243
W710
R925
R212
L204
C212
C412
R412
VR900
R924
S902
(TAPE)
R902
S901
(CD)
R901
R903
W241
C921
C920
W129
S910
(MUSIC PORT)
S903
(TUNER / BAND)
W238
W132
W125
S900
(STOP)
W124
WH900
W123
W108
S907
(CD OPEN/CLOSE)
R914
PbF
0089A

B MAIN P.C.B (REPV0089A)


CN804
CN901B
CN801
CP800
(TO CD OPEN SW)
Q808
Q807
Q802
Q801
CN504A
IC804
IC803
Q803
Q804
IC802
CN803B
Q751
Q750
IC700
IC801
CN401A
IC800
CN808B
Q421
Q422
Q221
Q222
PbF
0089A

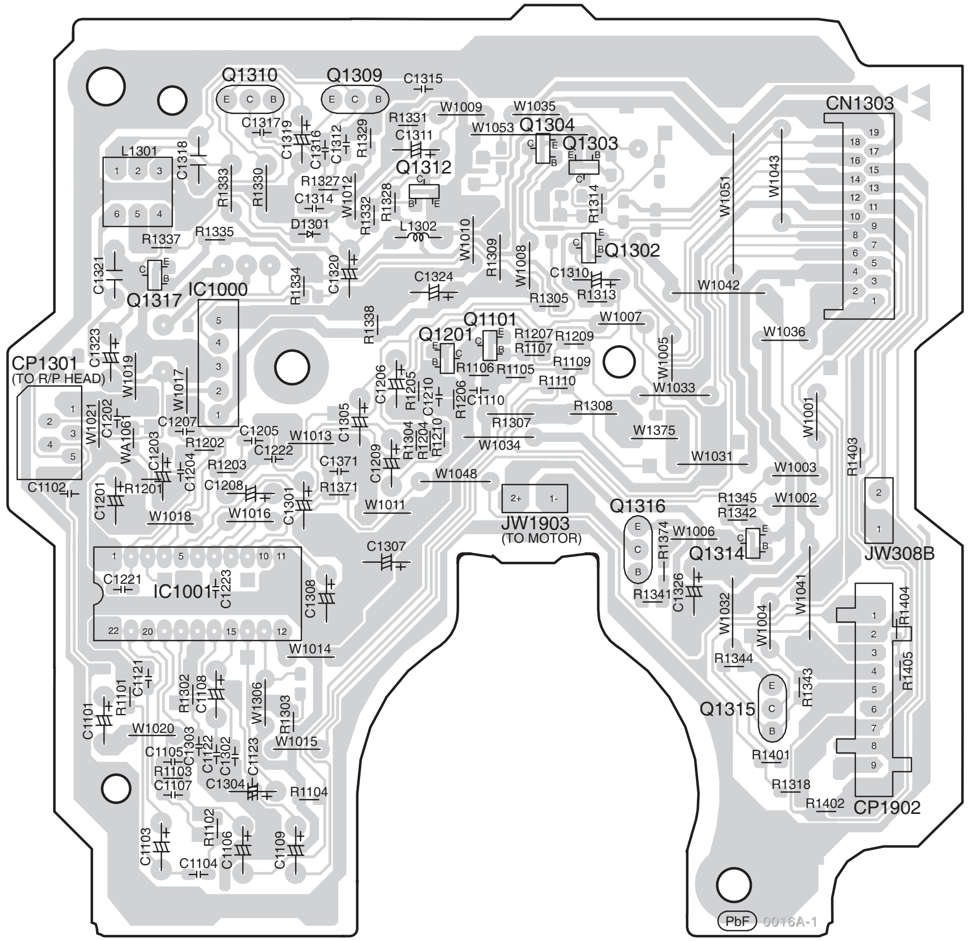
C TUNER EXTENT P.C.B (REPV0090A)


CN10
CN11 TO TUNER PACK Z401 (ENG07811QF)
PbF
0090A-1

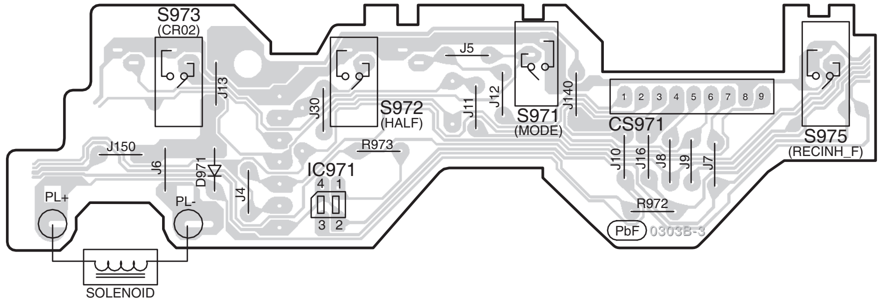
A B C D E F G H I J K L M N O P

1 2 3 4 5 6 7 8 9

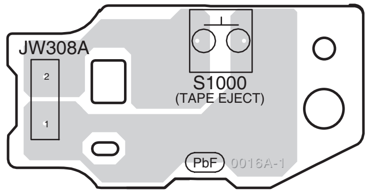
E DECK P.C.B (REPV0092B)


Q1310
Q1309
C1315
CN1303
L1301
Q1304
Q1303
Q1312
Q1302
Q1317
IC1000
Q1201
Q1101
CP1301
(TO R/P HEAD)
JW1903
(TO MOTOR)
Q1316
Q1314
JW308B
IC1001
Q1315
CP1902
PbF
0016A-1

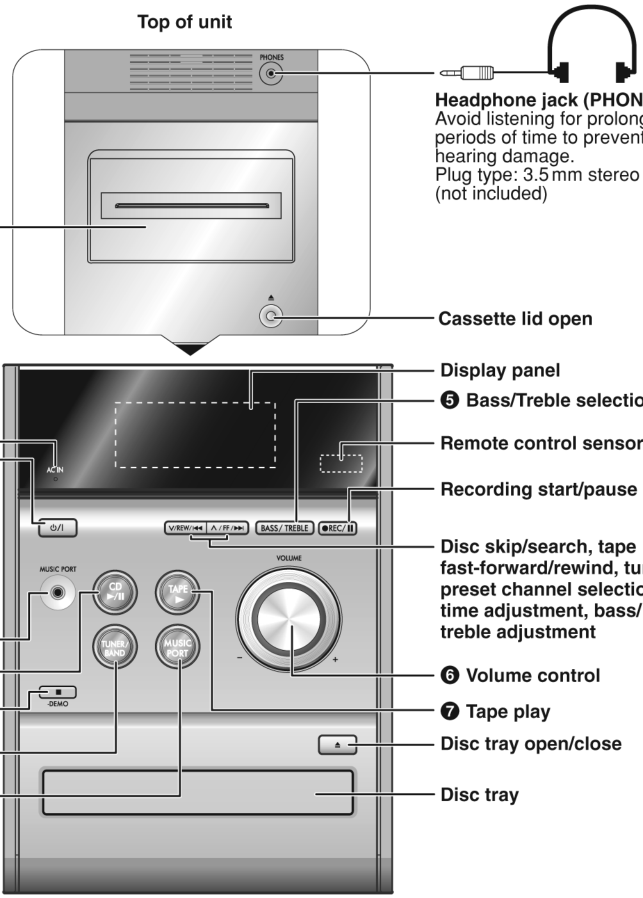
F DECK MECHANISM P.C.B (REPX0321H)


S973
(CR02)
S972
(HALF)
S971
(MODE)
CS971
S975
(RECINH_F)
J150
R973
IC971
R972
PL+
PL-
D971
SOLENOID
PbF
0303B-3

G TAPE EJECT P.C.B (REPV0092B)


JW308A
S1000
(TAPE EJECT)
PbF
0016A-1

Main unit


Top of unit
PHONES
AC IN
MUSIC PORT
CD ►/II
TAPE ►
TUNER/ BAND
MUSIC PORT
VOLUME
■ -DEMO
⏻/I
∨/REW/⏮ ∧/FF/⏭
BASS/TREBLE
●REC/II

Headphone jack (PHONES)
Avoid listening for prolonged periods of time to prevent hearing damage.
Plug type: 3.5 mm stereo (not included)

Cassette lid

Cassette lid open

AC supply indicator (AC IN)
This indicator lights when the unit is connected to the AC mains supply.

❶ Standby/on switch (⏻/I)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

Note:
It takes a few seconds to turn on the unit after connecting to the AC mains supply.

Music port jack

❷ Disc play/pause

Stop/Demo

❸ Tuner/Band selection

❹ Music port selection

Display panel

❺ Bass/Treble selection

Remote control sensor

Recording start/pause

Disc skip/search, tape fast-forward/rewind, tune/ preset channel selection, time adjustment, bass/ treble adjustment

❻ Volume control

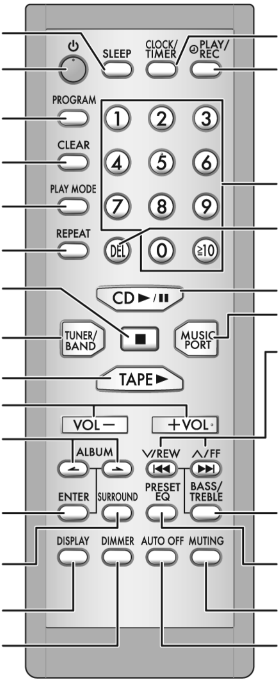
❼ Tape play

Disc tray open/close

Disc tray

Remote control

Buttons such as ❶ function the same as the controls on the main unit.


⏻
SLEEP
CLOCK/ TIMER
⊙PLAY/ REC
PROGRAM
CLEAR
PLAY MODE
REPEAT
1
2
3
4
5
6
7
8
9
DEL
0
≧10
CD ►/II
TUNER/ BAND
■
MUSIC PORT
TAPE ►
VOL −
+VOL
ALBUM
∨/REW ⏮
∧/FF ⏭
ENTER
SURROUND
PRESET EQ
BASS/ TREBLE
DISPLAY
DIMMER
AUTO OFF
MUTING

Sleep timer

❶

Program

Clear

Play mode

Repeat

Stop

❸

❼

❻

Album selection

Enter

Surround

Display

Dimmer

Clock/Timer

Play timer/Record timer

Numeric

Delete

❷

❹

Disc skip/search, tape fast-forward/ rewind, tune/preset channel selection, time adjustment, bass/ treble adjustment

❺

Preset EQ

Muting

Auto off

AUTO OFF	This function allows you to turn off the unit in **disc or tape** mode only after left unused for 10 minutes. The setting is maintained even if the unit is turned off.
DIMMER	Dims the display panel.
MUTING	Mutes the sound.

- Press the button to activate.
- Press again to cancel.

Note

- This unit can play MP3 files and CD-DA format audio CD-R/RW that have been finalized.
- It may not be able to play some CD-R/RW depending on the condition of the recording.
- Do not use irregularly shaped discs.
- Do not use discs with labels and stickers that are coming off or with adhesive exuding from under labels and stickers.
- Do not attach extra labels or stickers on the disc.
- Do not write anything on the disc.

CD

- This unit can access up to 99 tracks.
- Choose a CD with this mark:

COMPACT
disc
DIGITAL AUDIO

Using DualDiscs

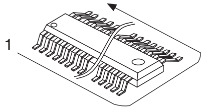
The “CD” sides of DualDiscs do not meet the CD-DA standard so it may not be possible to play them on this unit.

MP3

- Files are treated as tracks and folders are treated as albums.
- This unit can access up to 999 tracks, 255 albums and 20 sessions.
- Disc must conform to ISO9660 level 1 or 2 (except for extended formats).
- To play in a certain order, prefix the folder and file names with the 3-digit numbers in the order you want to play them.

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

BA5948FPE2 (28P)
AN7326K (22P)



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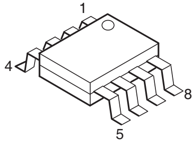

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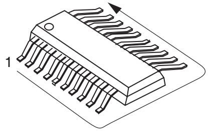

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MN101C49GHD(100P)
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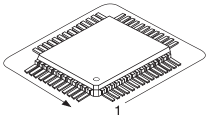

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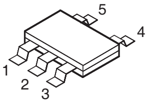

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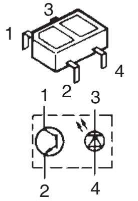

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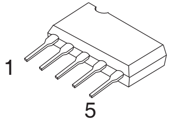

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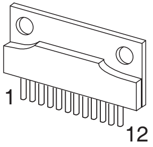

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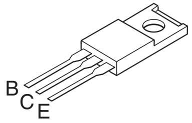

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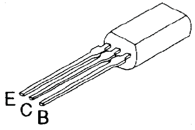

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B1GDCFGH0002
B1ABCF000011
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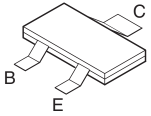

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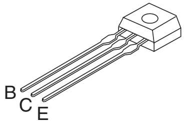

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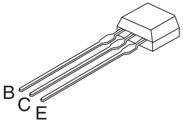

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2SD09650RA
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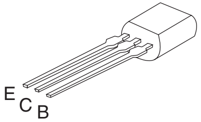

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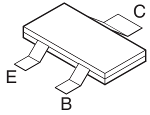

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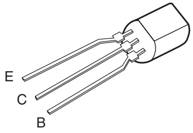

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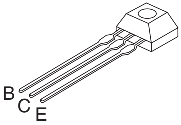

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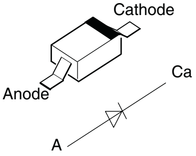
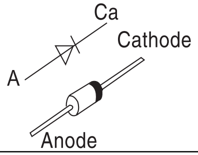

Cathode
Anode
Ca
A

B0EAKM000117
B0EAMM000038
B0EAKM000122


Ca
Cathode
A
Anode

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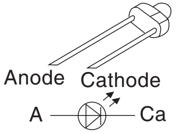
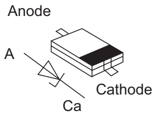
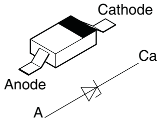

Anode
Cathode
A
Ca

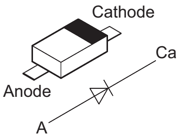
B0BC5R600003


Anode
A
Cathode
Ca

MAZ80560ML
B0BC8R100004
B0BC026A0007
B0BC6R700006


Cathode
Ca
Anode
A

B0ACCK000005


Cathode
Ca
Anode
A

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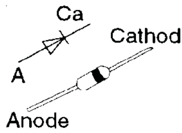
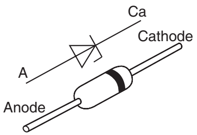

Ca
Cathode
A
Anode

B0BA6R800007
B0BA02600017
B0BA3R900006
B0BA5R600016
B0BA9R600002
B0BA8R200005

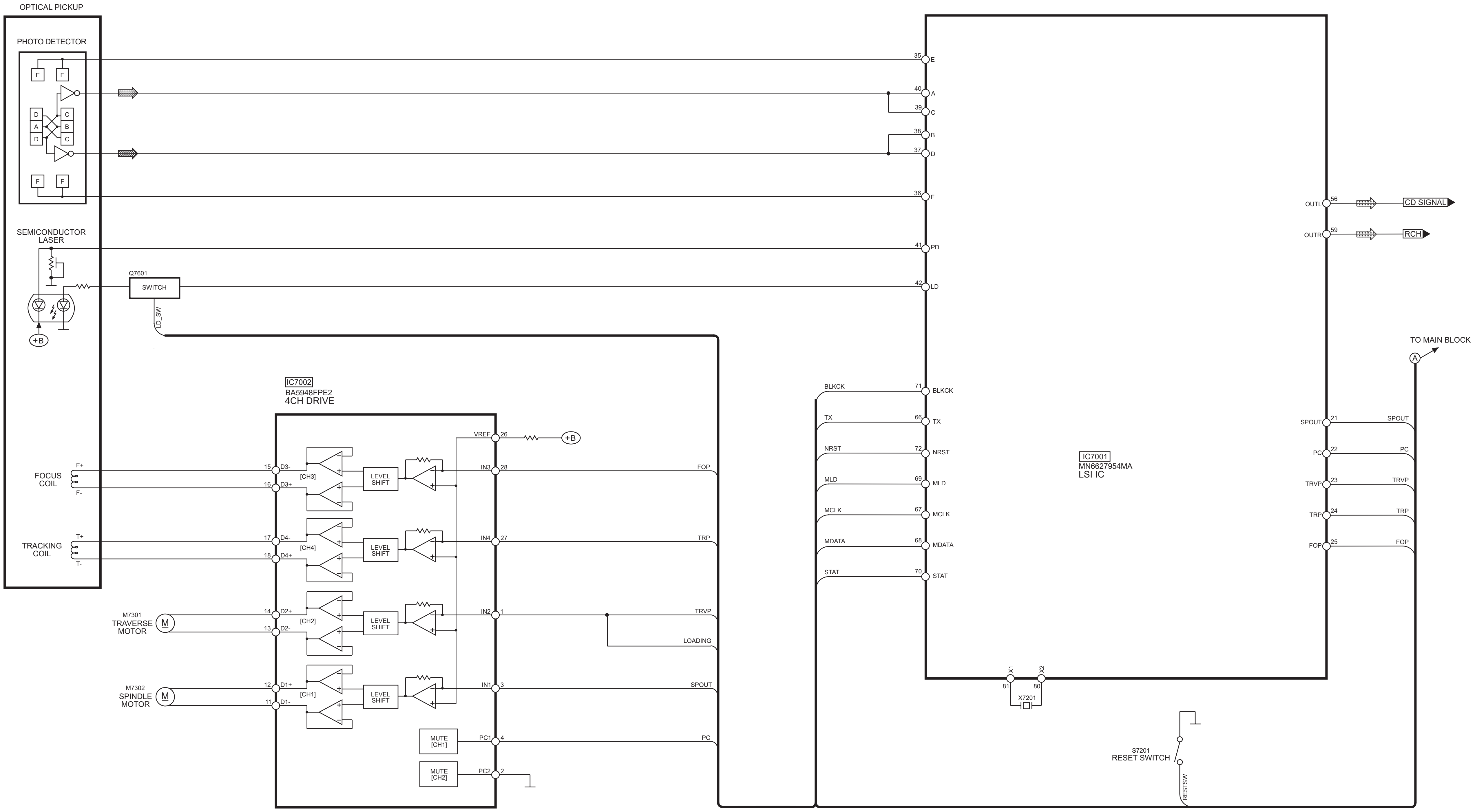

Ca
Cathode
A
Anode

SIGNAL LINES

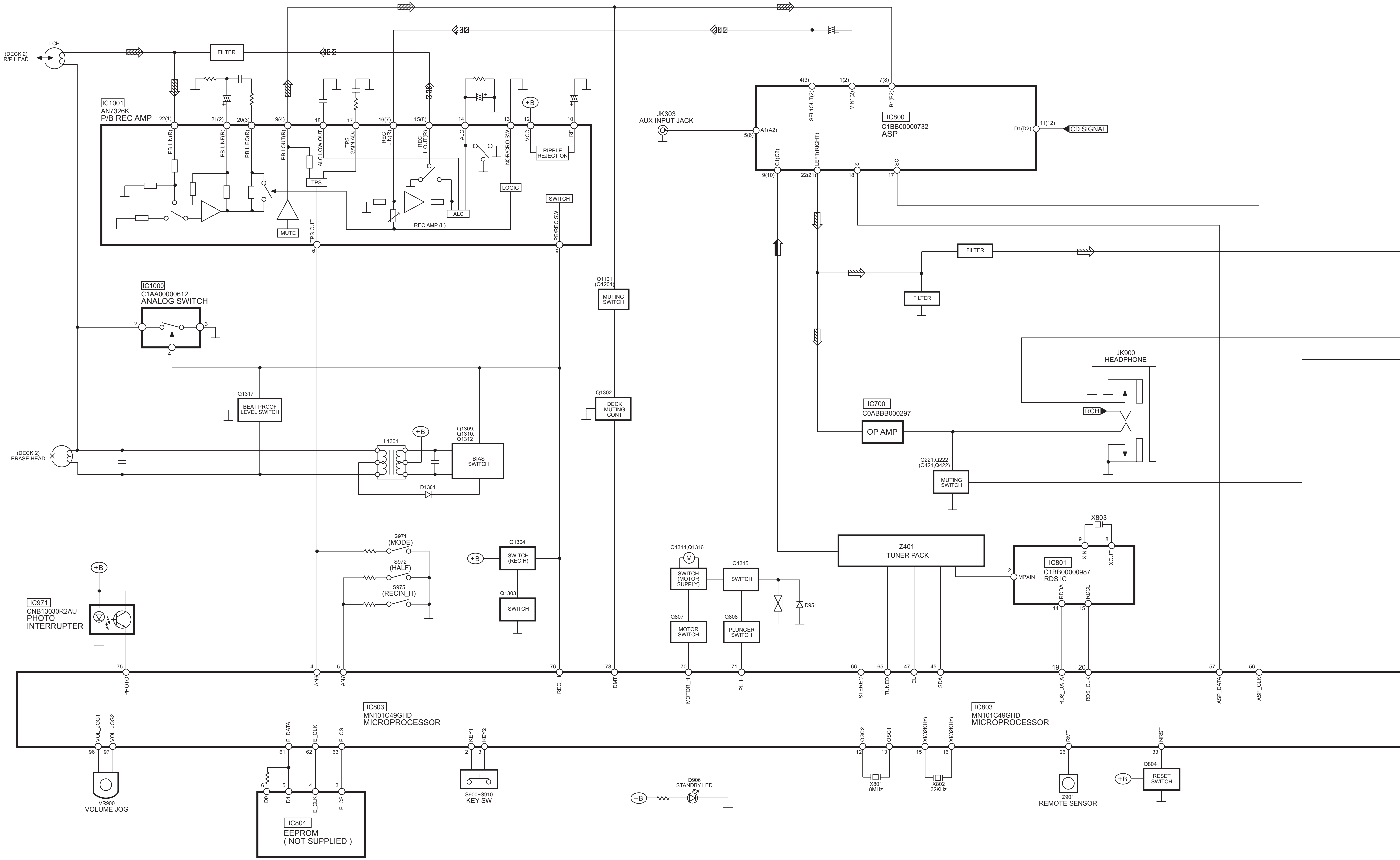
: MAIN SIGNAL LINE
CD SIGNAL LINE
: TAPE PLAYBACK SIGNAL LINE
: FM/AM SIGNAL LINE
: TAPE RECORD SIGNAL LINE

( ) Indicates Pin No. of Right Channel

Note : Signal Lines are applicable to the Left Channel only.



OPTICAL PICKUP
PHOTO DETECTOR
E
E
D
A
D
C
B
C
F
F
SEMICONDUCTOR LASER
+B
Q7601
SWITCH
LD_SW
FOCUS COIL
F+
F-
TRACKING COIL
T+
T-
M7301
TRAVERSE MOTOR
M7302
SPINDLE MOTOR
IC7002
BA5948FPE2
4CH DRIVE
15 D3-
16 D3+
[CH3]
17 D4-
18 D4+
[CH4]
14 D2+
13 D2-
[CH2]
12 D1+
11 D1-
[CH1]
LEVEL SHIFT
VREF 26
+B
IN3 28
IN4 27
IN2 1
IN1 3
MUTE [CH1]
PC1 4
MUTE [CH2]
PC2 2
FOP
TRP
TRVP
LOADING
SPOUT
PC
35 E
40 A
39 C
38 B
37 D
36 F
41 PD
42 LD
BLKCK
71 BLKCK
TX
66 TX
NRST
72 NRST
MLD
69 MLD
MCLK
67 MCLK
MDATA
68 MDATA
STAT
70 STAT
IC7001
MN6627954MA
LSI IC
X1 81
X2 80
X7201
S7201
RESET SWITCH
RESTSW
OUTL 56
CD SIGNAL
OUTR 59
RCH
TO MAIN BLOCK
A
SPOUT 21
SPOUT
PC 22
PC
TRVP 23
TRVP
TRP 24
TRP
FOP 25
FOP

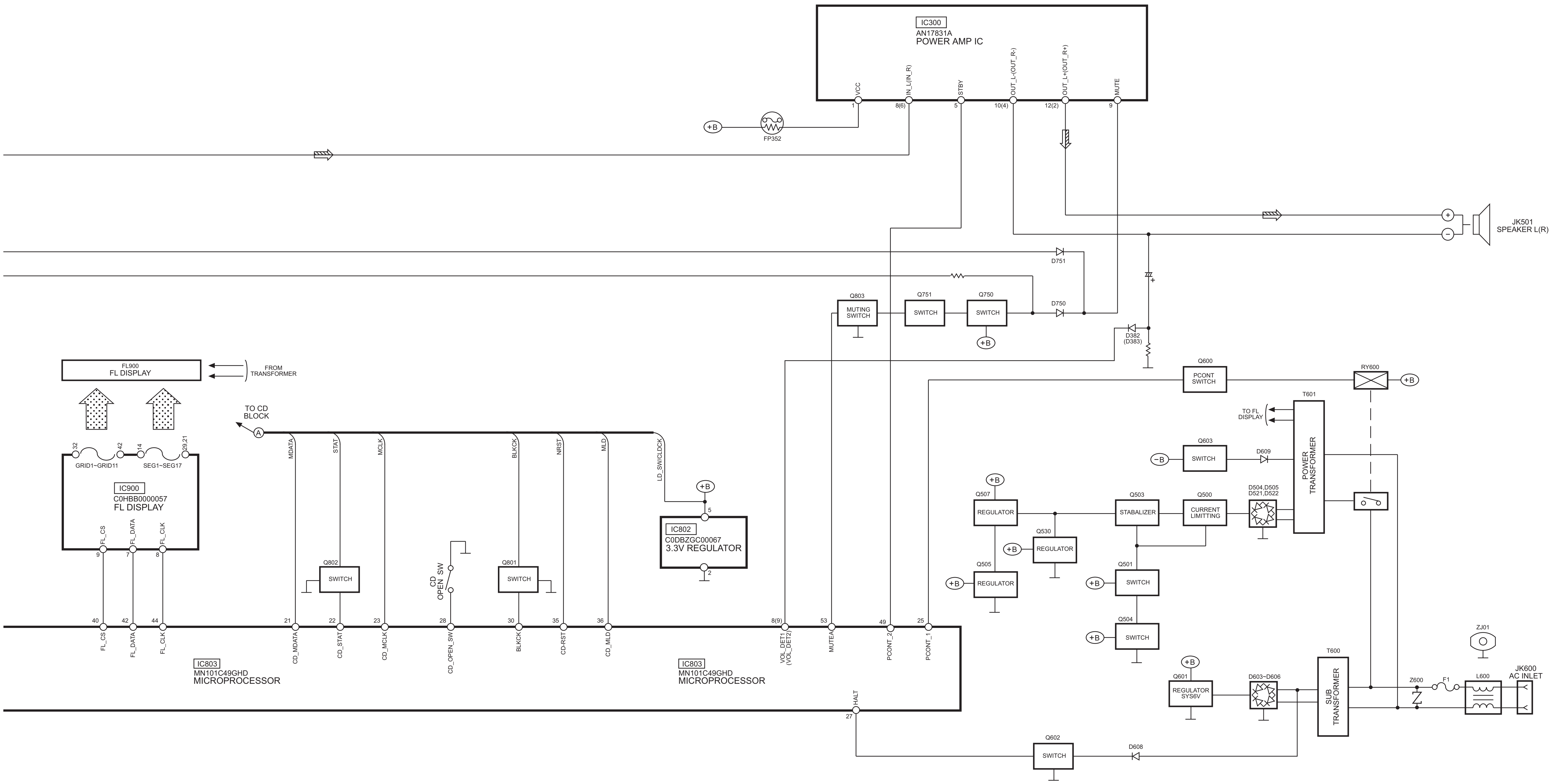

(DECK 2) R/P HEAD
LCH
FILTER
IC1001
AN7326K
P/B REC AMP
22(1) 21(2) 20(3) 19(4) 18 17 16(7) 15(8) 14 13 12 10
PB LIN(R)
PB L NF(R)
PB L EQ(R)
PB LOUT(R)
ALC LOW OUT
TPS GAIN ADJ
REC LIN(R)
REC L OUT(R)
ALC
NOR/CRO SW
VCC
RF
+B
RIPPLE REJECTION
LOGIC
TPS
ALC
MUTE
REC AMP (L)
SWITCH
TPS OUT
PB/REC SW
6
9
IC1000
C1AA00000612
ANALOG SWITCH
2 3 4
Q1317
BEAT PROOF LEVEL SWITCH
(DECK 2) ERASE HEAD
L1301
+B
Q1309, Q1310, Q1312
BIAS SWITCH
D1301
Q1101 (Q1201)
MUTING SWITCH
Q1302
DECK MUTING CONT
S971 (MODE)
S972 (HALF)
S975 (RECIN_H)
Q1304
SWITCH (REC:H)
+B
Q1303
SWITCH
+B
IC971
CNB13030R2AU
PHOTO INTERRUPTER
JK303
AUX INPUT JACK
5(6)
A1(A2)
4(3) 1(2) 7(8)
SEL1OUT(2)
VIN1(2)
B1(B2)
IC800
C1BB00000732
ASP
D1(D2)
11(12)
CD SIGNAL
C1(C2)
LEFT(RIGHT)
S1
SC
9(10) 22(21) 18 17
FILTER
FILTER
JK900
HEADPHONE
RCH
IC700
C0ABBB000297
OP AMP
Q221,Q222 (Q421,Q422)
MUTING SWITCH
X803
9 8
XIN XOUT
Z401
TUNER PACK
2
MPXIN
IC801
C1BB00000987
RDS IC
RDDA RDCL
14 15
Q1314,Q1316
M
SWITCH (MOTOR SUPPLY)
Q1315
SWITCH
Q807
MOTOR SWITCH
Q808
PLUNGER SWITCH
D951
75 4 5 76 78 70 71 66 65 47 45 19 20 57 56
PHOTO
AN6
AN7
REC_H
DMT
MOTOR_H
PL_H
STEREO
TUNED
CL
SDA
RDS_DATA
RDS_CLK
ASP_DATA
ASP_CLK
IC803
MN101C49GHD
MICROPROCESSOR
IC803
MN101C49GHD
MICROPROCESSOR
VOL_JOG1 VOL_JOG2
96 97
E_DATA E_CLK E_CS
61 62 63
KEY1 KEY2
2 3
OSC2 OSC1 XI(32KHz) XI(32KHz)
12 13 15 16
RMT
26
NRST
33
VR900
VOLUME JOG
6 5 4 3
D0 D1 E_CLK E_CS
IC804
EEPROM
(NOT SUPPLIED)
S900~S910
KEY SW
D906
STANDBY LED
+B
X801
8MHz
X802
32KHz
Z901
REMOTE SENSOR
Q804
RESET SWITCH
+B

SIGNAL LINES

⇨ : MAIN SIGNAL LINE
⇨ CD SIGNAL LINE
⇨ : TAPE PLAYBACK SIGNAL LINE
➡ : FM/AM SIGNAL LINE
⇨ : TAPE RECORD SIGNAL LINE

(   ) Indicates Pin No. of Right Channel

Note : Signal Lines are applicable to the Left Channel only.

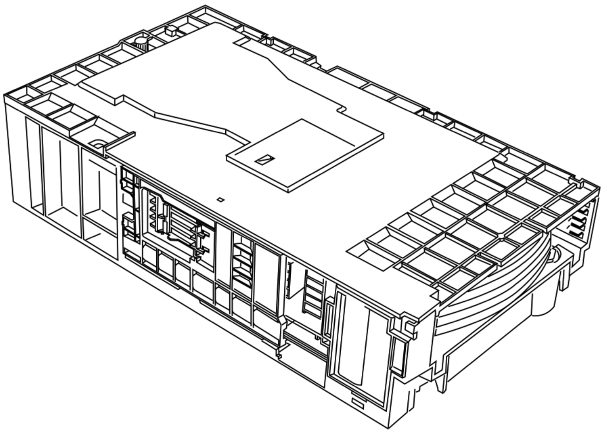

IC300
AN17831A
POWER AMP IC
VCC
IN_L(IN_R)
STBY
OUT_L-(OUT_R-)
OUT_L+(OUT_R+)
MUTE
1
8(6)
5
10(4)
12(2)
9
+B
FP352
JK501
SPEAKER L(R)
+
−
D751
D750
Q803
MUTING SWITCH
Q751
SWITCH
Q750
SWITCH
+B
D382
(D383)
+
Q600
PCONT SWITCH
RY600
+B
T601
POWER TRANSFORMER
TO FL DISPLAY
Q603
SWITCH
−B
D609
+B
Q507
REGULATOR
Q503
STABALIZER
Q500
CURRENT LIMITTING
D504,D505
D521,D522
Q530
REGULATOR
+B
Q505
REGULATOR
+B
Q501
SWITCH
+B
Q504
SWITCH
+B
ZJ01
T600
SUB TRANSFORMER
+B
Q601
REGULATOR SYS6V
D603~D606
Z600
F1
L600
JK600
AC INLET
Q602
SWITCH
D608
FL900
FL DISPLAY
FROM TRANSFORMER
TO CD BLOCK
A
32
42
14
29,21
GRID1~GRID11
SEG1~SEG17
IC900
C0HBB0000057
FL DISPLAY
FL_CS
FL_DATA
FL_CLK
9
7
8
MDATA
STAT
MCLK
BLKCK
NRST
MLD
LD_SW/CLDCK
+B
5
IC802
C0DBZGC00067
3.3V REGULATOR
2
Q802
SWITCH
CD OPEN SW
Q801
SWITCH
40
42
44
21
22
23
28
30
35
36
8(9)
53
49
25
FL_CS
FL_DATA
FL_CLK
CD_MDATA
CD_STAT
CD_MCLK
CD_OPEN_SW
BLKCK
CD-RST
CD_MLD
VOL_DET1 (VOL_DET2)
MUTEA
PCONT_2
PCONT_1
IC803
MN101C49GHD
MICROPROCESSOR
IC803
MN101C49GHD
MICROPROCESSOR
HALT
27

ORDER NO. MD0509368C0
A6

Service Manual

Mechanism Unit

CRS1



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

Page

1 Mechanism Overview ········ **3**

2 Mechanism Drive Unit ········ **4**

2.1. Tray Open/Close and Multi-Discs Change operations ········ 4

2.2. Disc Selection operation ········ 5

2.3. Play/Stop operation ········ 7

3 Mechanism Operation Description ········ **9**

3.1. General Feature ········ 9

3.2. Hardware composition ········ 9

3.3. Mechanism Operation ········ 9

3.4. Switches Chattering Check ········ 12

3.5. Motor Movement Control ········ 12

3.6. Plunger Timing Chart ········ 12

3.7. Initialization of Mechanism Unit. ········ 15

3.8. Mechanism "HOME" position ········ 16

3.9. Mechanism "Play Driving" position ········ 17

3.10. Trays Operation ········ 18

3.11. Drive tray between STOCK and PLAY position ········ 25

3.12. Selection of Tray by Moving UD base Up/down ········ 26

3.13. Fail Safe ········ 29

3.14. Manual Trigger Tray Close ········ 30

3.15. Changer Error Code ········ 31

4 Self diagnosis and special mode setting ········ **32**

Page

4.1. Special Mode Table ········ 32

4.2. Error code Table ········ 34

5 Troubleshooting Explorer ········ **38**

5.1. Preparation of service jig ········ 38

5.2. Checking of Changer Unit ········ 38

5.3. Setting the trays in "STOCK" position ········ 38

6 Flow Chart ········ **49**

6.1. Disassembly Flow Chart ········ 49

6.2. Assembly Flow Chart ········ 50

6.3. Disassembly Flow ········ 51

7 Assembling and Disassembling Procedure. ········ **53**

7.1. Disassembling Procedures ········ 53

7.2. Assembling Procedure ········ 73

8 CRS1 (Changer Unit) Ageing / Reliability ········ **93**

8.1. Equipments ········ 93

9 Notes of Schematic Diagram ········ **94**

10 Schematic Diagram ········ **95**

10.1. CD Loading Circuit ········ 95

11 Printed Circuit Board ········ **96**

11.1. CD Loading P.C.B. ········ 96

12 Exploded Views ········ **97**

12.1. CD Loading Mechanism ········ 97

Panasonic

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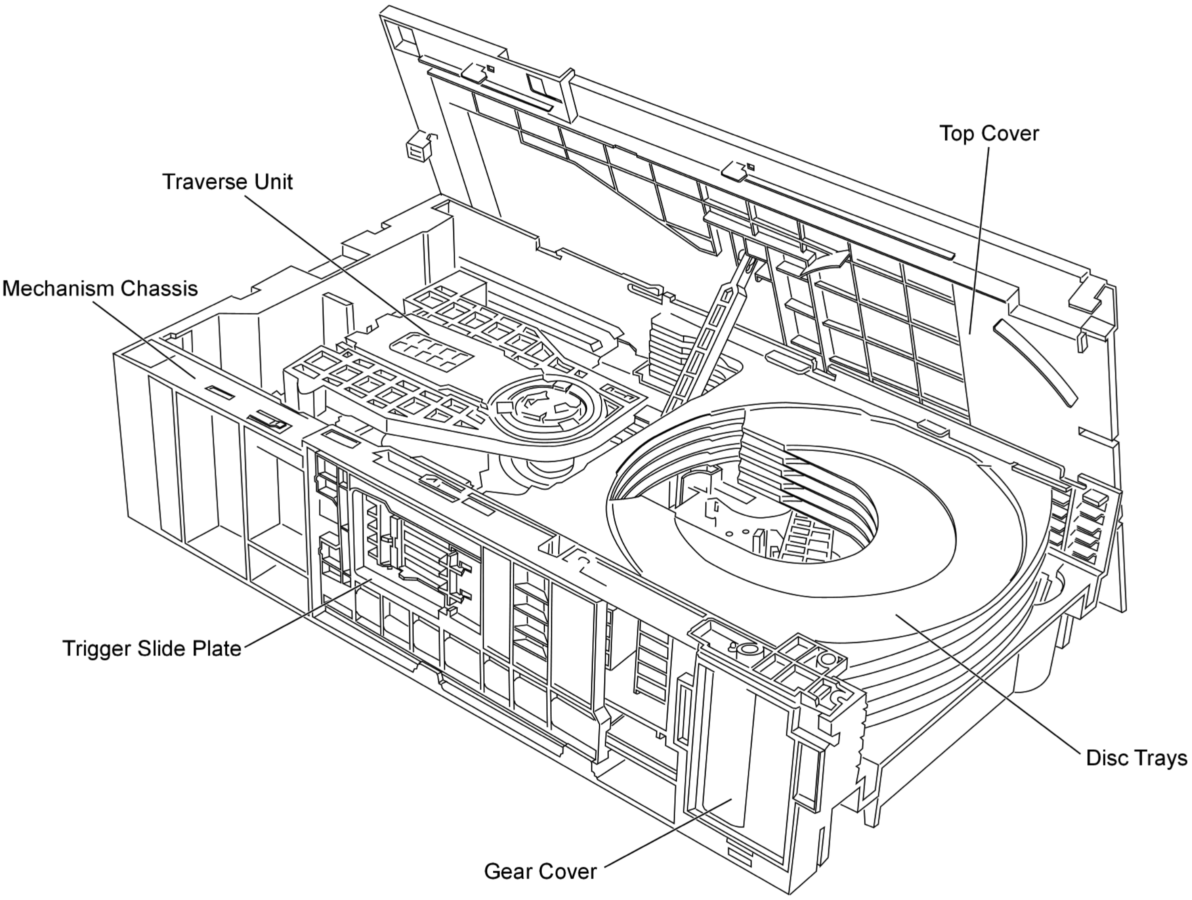
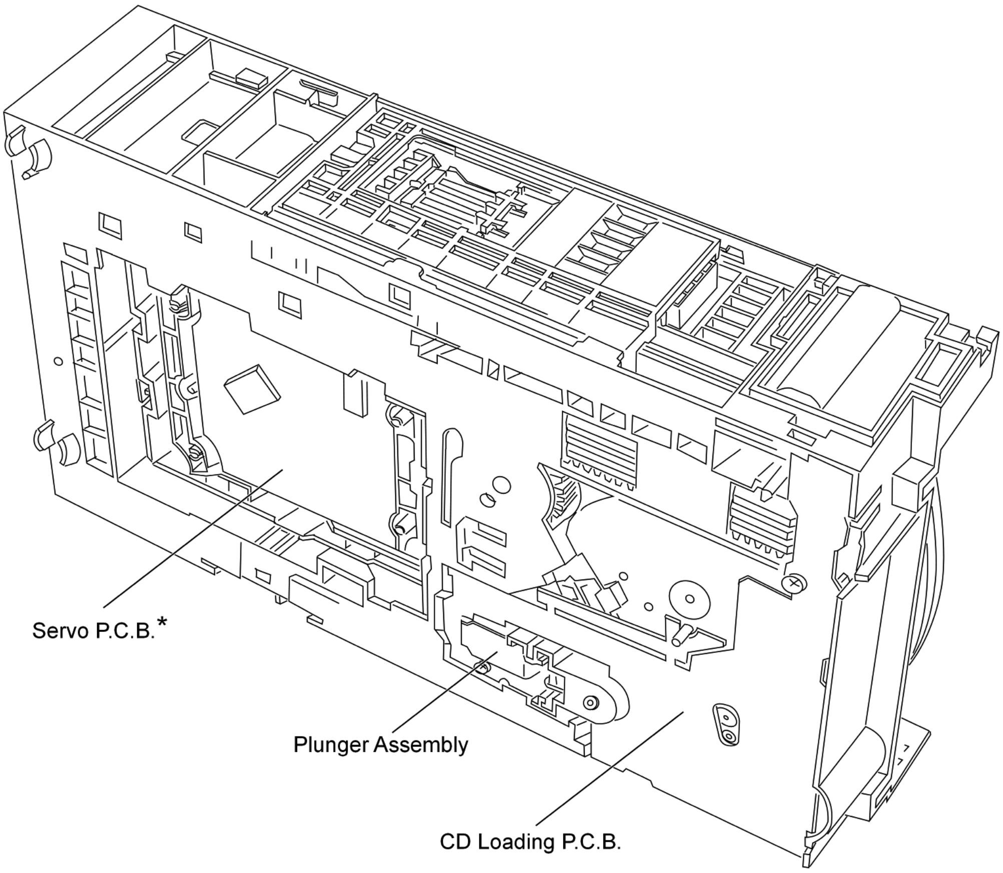
13 Replacement Parts List ---- **100**
13.1. CD Loading Mechanism Parts List ---- 101
13.2. Electrical Parts List ---- 102

1 Mechanism Overview

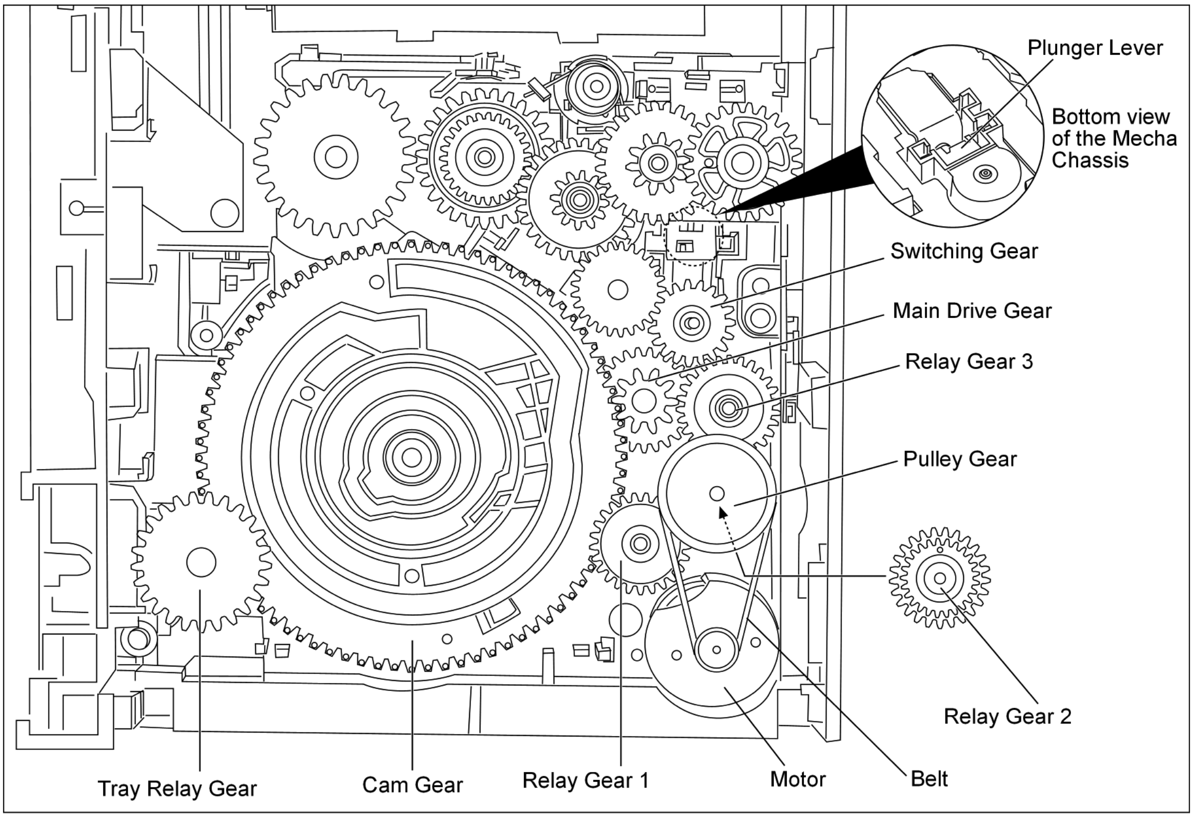

Top Cover
Traverse Unit
Mechanism Chassis
Trigger Slide Plate
Disc Trays
Gear Cover

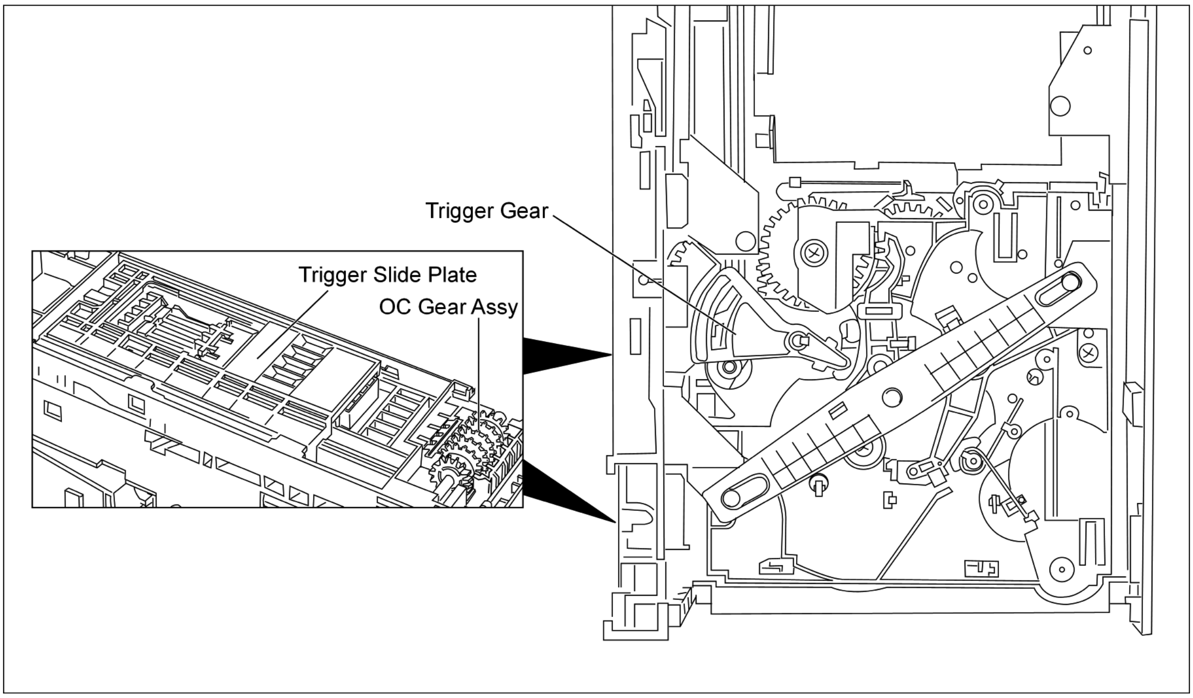

Servo P.C.B.*
Plunger Assembly
CD Loading P.C.B.

* Illustration for CD Servo P.C.B. (Applied models: SA-AK240/340/640 series)

2 Mechanism Drive Unit

2.1. Tray Open/Close and Multi-Discs Change operations


Plunger Lever
Bottom view of the Mecha Chassis
Switching Gear
Main Drive Gear
Relay Gear 3
Pulley Gear
Relay Gear 2
Tray Relay Gear
Cam Gear
Relay Gear 1
Motor
Belt


Trigger Gear
Trigger Slide Plate
OC Gear Assy

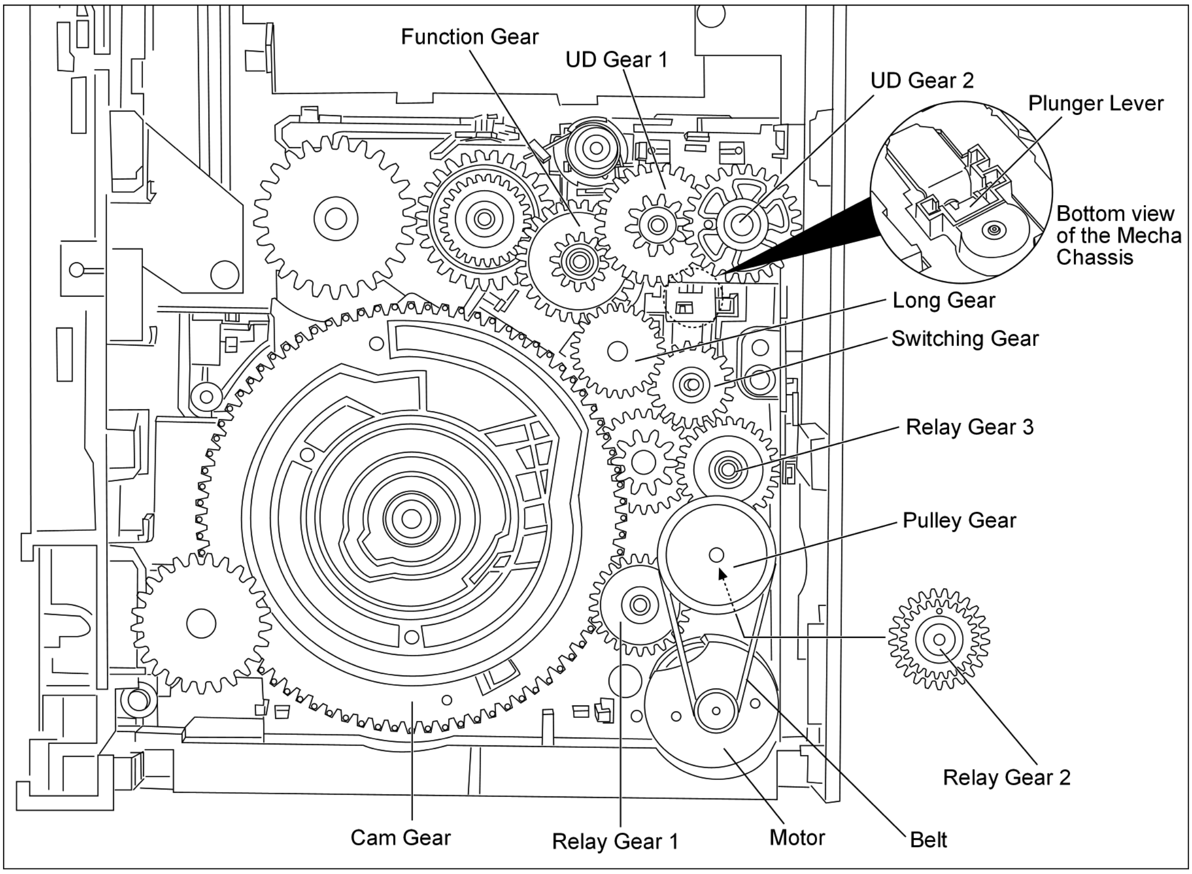
2.1.1. Description of tray open/close and multi-discs change operations

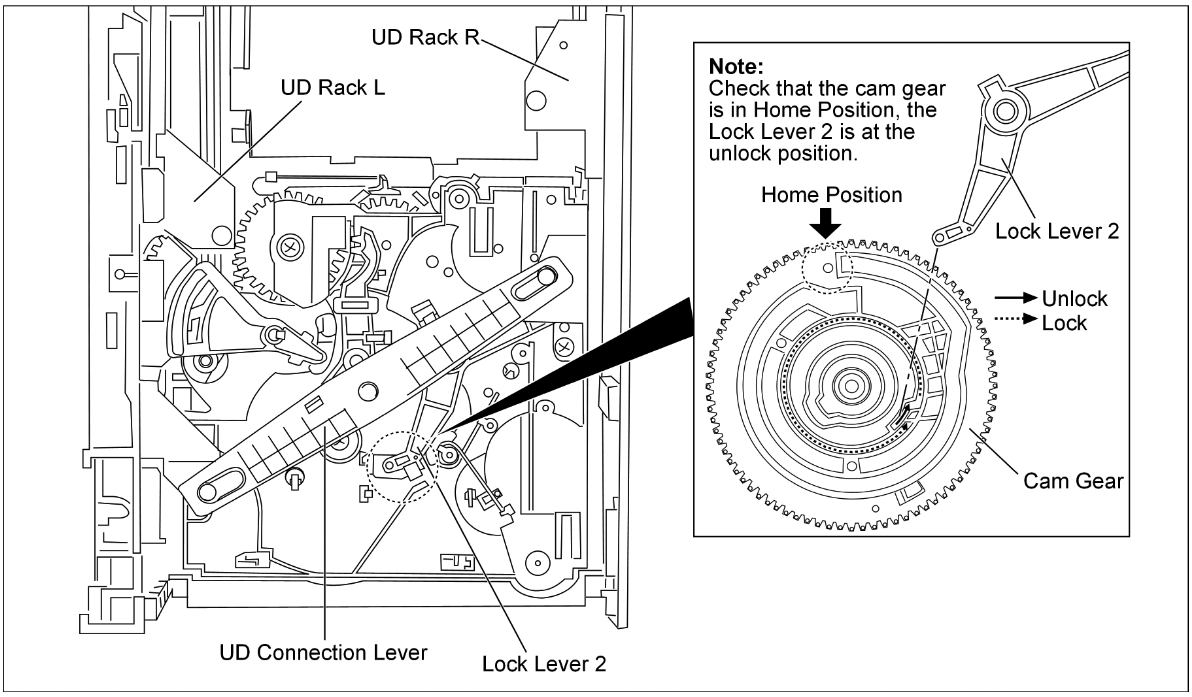
1. The motor turns in the clockwise direction and the rotation is transmitted via the belt, the pulley gear also turns clockwise.
2. The relay gear 1 turns counterclockwise.
3. The relay gear 2 turns clockwise.
4. The relay gear 3 turns counterclockwise.
5. The switching gear at down position turns clockwise (up/down position functioned by the plunger lever).
6. The main drive gear turns counterclockwise.

7. The cam gear turns clockwise, which is engaged with the trigger gear and slide plate, are driven, causes the tray lock lever unlock.
8. The tray relay gear turns counterclockwise, which is engaged with the OC assy, is driven.
9. The movement of the OC assy releases the disc trays.

(The operation of the disc trays closed is the opposite of that for opening of disc trays.)

2.2. Disc Selection operation


Function Gear
UD Gear 1
UD Gear 2
Plunger Lever
Bottom view of the Mecha Chassis
Long Gear
Switching Gear
Relay Gear 3
Pulley Gear
Relay Gear 2
Cam Gear
Relay Gear 1
Motor
Belt


UD Rack R
UD Rack L
Home Position
Lock Lever 2
Unlock
Lock
Cam Gear
UD Connection Lever
Lock Lever 2

Note:
Check that the cam gear is in Home Position, the Lock Lever 2 is at the unlock position.

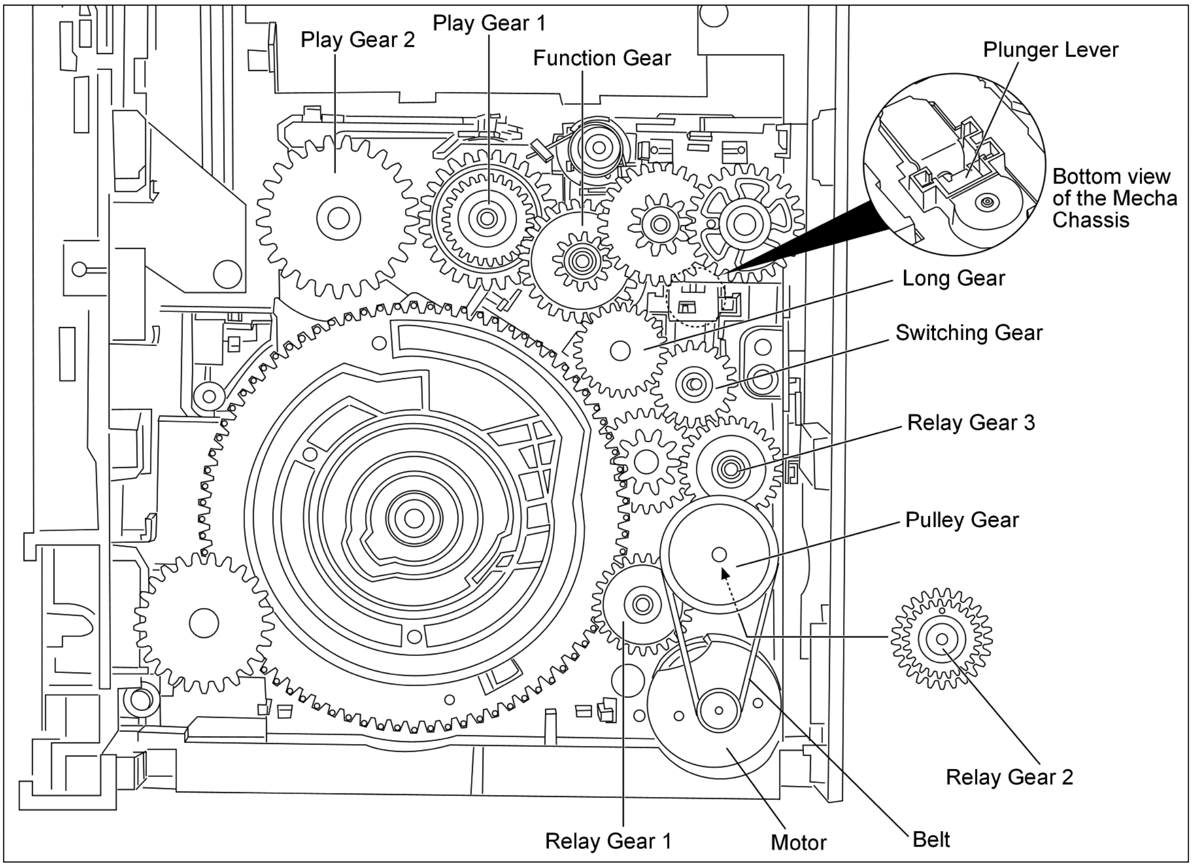
2.2.1. Description of disc selection operation

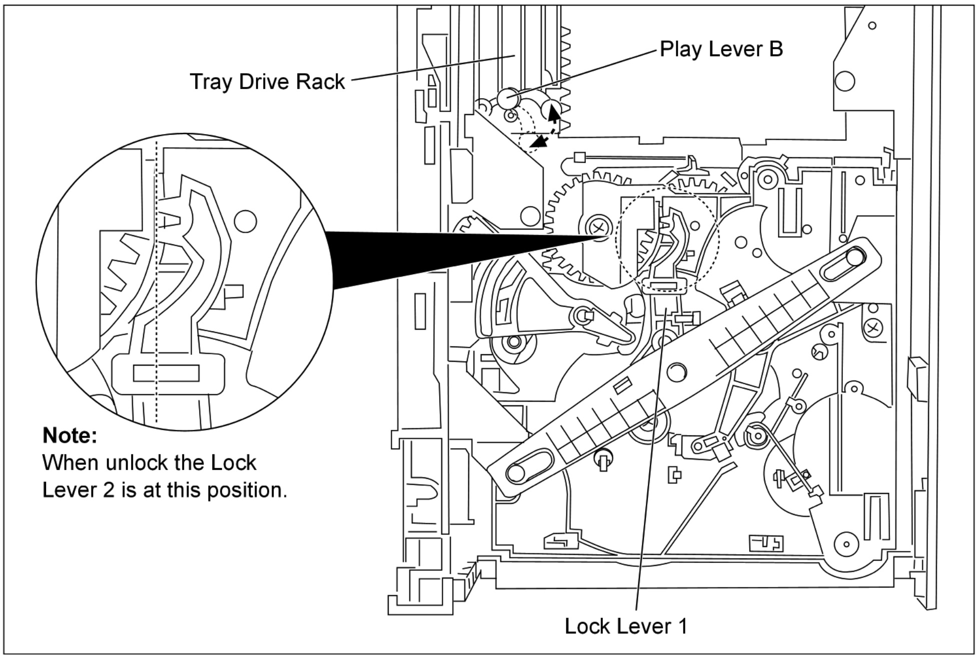
Note: Check that the cam gear is in “HOME” position.

1. The motor turns in the clockwise direction and the rotation is transmitted via the belt, the pulley gear also turns clockwise.
2. The relay gear 1 turns counterclockwise.
3. The relay gear 2 turns clockwise.
4. The relay gear 3 turns counterclockwise..
5. The switching gear move up turns clockwise (up/down position functioned by the plunger lever).
6. The long gear turns counterclockwise.
7. The function gear moved up turns clockwise.
8. The UD gear 1 turns counterclockwise.
9. The UD gear 2 turns clockwise engaged with the UD rack R drives the UD connection lever turns clockwise, UD rack L, is driven to move the traverse deck assembly up.

(The operation of the traverse deck assembly down is the opposite of that for the traverse deck assembly up.)

2.3. Play/Stop operation


Play Gear 1
Play Gear 2
Function Gear
Plunger Lever
Bottom view of the Mecha Chassis
Long Gear
Switching Gear
Relay Gear 3
Pulley Gear
Relay Gear 2
Relay Gear 1
Motor
Belt


Play Lever B
Tray Drive Rack
Lock Lever 1

Note:
When unlock the Lock Lever 2 is at this position.

2.3.1. Description of play/stop operation

Note: Check that the Lock Lever 1 is unlock.

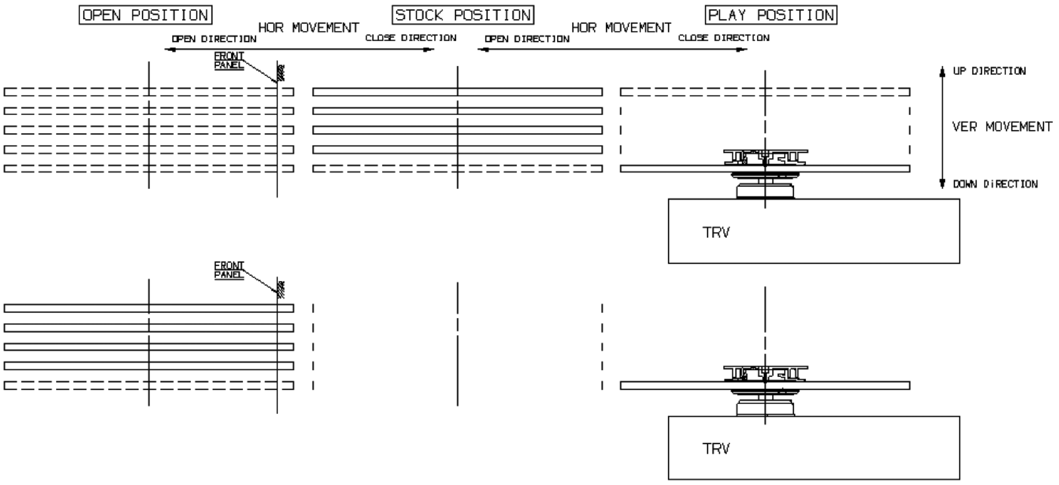
1. The motor turns in the clockwise direction and the rotation is transmitted via the belt, the pulley gear also turns clockwise.
2. The relay gear 1 turns counterclockwise.
3. The relay gear 2 turns clockwise.
4. The relay gear 3 turns counterclockwise.
5. The switching gear move up turns clockwise (up/down position functioned by the plunger lever).
6. The long gear turns counterclockwise.

7. The function gear move down turns clockwise.
8. The play gear 1 turns counterclockwise.
9. The play gear 2 turns clockwise engaged with the tray drive rack and tray catch lever to push in the disc trays.
10. Play lever B engaged with the traverse deck assembly’s play lever A, causes slide plate move towards to the play position.

3 Mechanism Operation Description

3.1. General Feature

- This is a five disc changer mechanism for CD/DVD. The outline figure is shown below.



- The mechanism has **"CHANGE WHILE PLAY"** function. It open other trays for disc exchanging while one tray is at PLAY position performing recording or reproducing.
- The mechanism can quickly change all trays with **"CHANGE ALL"** function. All trays can be move to OPEN position with one operation.
- There is no sensor to indicate presence of disc on any tray.

3.2. Hardware composition

- Below is the hardware components of the mechanism

Name	Function
Open Switch (OPEN-SW)	The switch is used to detect normal tray opening
	The switch is used for detect tray being manually push/trigger when full open
Home Switch (HOME-SW)	Is used to detect cam gear home position
Close Sensor (CLOSE-SENSOR)	Used for normal single tray closing
	Used to detect cam gear rotate to Play Driving position
Play Switch (PLAY-SW)	Detect TRV clamping complete position
Stocking Switch (STOCK-SW)	Detect tray completely transfer for play position to stocking positi
UD Sensor (UD-SENSOR)	Detect TRV vertical movement position
Top Switch (TOP-SW)	Detect a default position of TRV vertical movement position
Driver IC	To drive Motor
Motor	Main driving source for changer
Plunger	Switching the driving source from motor to: 1. Tray open/close 2. Drive tray to play/stock position and TRV vertical movemen

3.3. Mechanism Operation

- This mechanism has the following state:
  1. Driving of a tray to open/close
  2. Up/down operation of a traverse performs a state changes of tray.

  By using the plunger to lift/release of a switching gear, and the cam gear to lift/release the function gear the motor can be link to several gear trains to perform various operations.
- The functions that can be perform in this mechanism are described as below:

Condition	Explanation
Open current playing tray	The state to change current playing disc. All tray will be open at once and current tray at PLAY position will be expose.
Open All	The state where all trays being driven to OPEN position. The disc can be taken in or out from tray to tray by close tray one by one from top to bottom.
Stock	The state where the trays are stored in STOCK position
Play	The state where one of the tray 5 trays is being driven to PLAY position and clamped by traverse unit

Condition	Explanation
Play & Open Tray-*	The state where one of the tray is in playing position performing recording or reproducing, other trays can be used (OPEN position) for disc exchanging without stopping the recording or reproducing process.
Change	The state when one of the opened tray being driven from OPEN position to STOCK position and other opened trays remain still at OPEN position.
Close All	The state where all open trays will being driven from OPEN position to STOCK position, one by one from top to bottom

Note: * represent tray number (from 1 ~ 5)

- Logics of motor control:

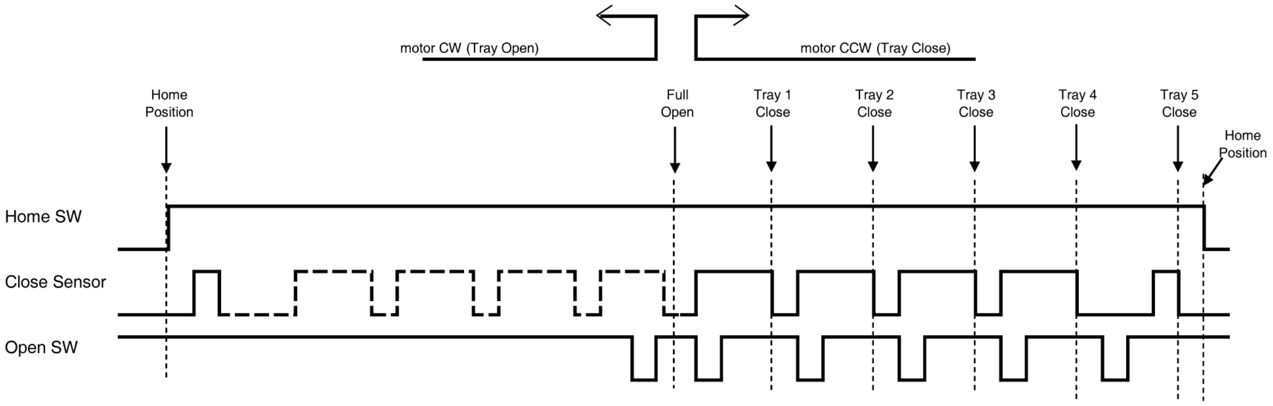
Action	CW	CCW	Plunger
Tray Opening	H	L	L
Tray Closing	L	H	L
Cam move from Home Position to Play Driving Position	H	L	L
Cam move from Play Driving Position to Home Position	L	H	L
Drive tray to PLAY position	H	L	H
Drive tray to STOCK position	L	H	H
UD base moving upward	H	L	H
UD base moving downward	L	H	H

Notes :
CW/CCW : Motor direction control (CW : clockwise, CCW : Anti-clockwise)
Plunger : Solenoid Control (H : ON = Activation)

- Cam gear in the mechanism use for opening/closing of trays and lifting a function gear to link to gear train that drive UD base moving up/down. When cam gear is being driven to play driving position, the function gear will be bring down to link the gear train that drive tray to and from STOCK position and PLAY position. Below are the relation between mechanism function and cam gear movement and position

Motor Direction	Plunger Unit	Cam gear movement/position	Function
CW	Release	Home SW → rotate CW	Trays Open
CCW	Release	Rotate CCW → Home SW	Trays Close
CW	Release	Home SW → close sensor 1st L-H signal	Cam gear move from Home Position to Play Driving Posi
CCW	Release	Close sensor 1st (H → L) signal → Home SW	Cam gear move from Play Driving Position to Home Position
CW	Up	Cam Stop at Home Position	UD base moving from bottom to top
CCW	Up	Cam Stop at Home Position	UD base moving from top to bottom
CW	Up	Cam Stop at Play Driving Position	Tray move from STOCK to PLAY position
CCW	Up	Cam Stop at Play Driving Position	Tray move from PLAY position to STOCK Position

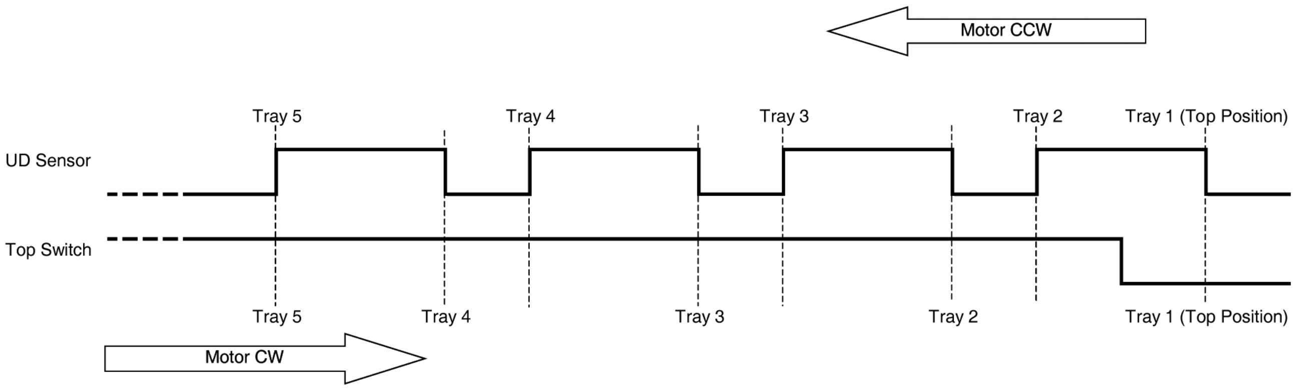
- Cam gear rotation direction, switch and state changes is show in figure below:



- The movement of UD base (vertical up/down) and driving of tray(s) between STOCK position and PLAY position is only enable when plunger ON (lift up the switching gear to link driving source to the both gear train). Only one gear train can be driven at one time, the selection of either gear train is depending on cam gear position. Below are figure showing the operation of motor driving direction and its function carry out.

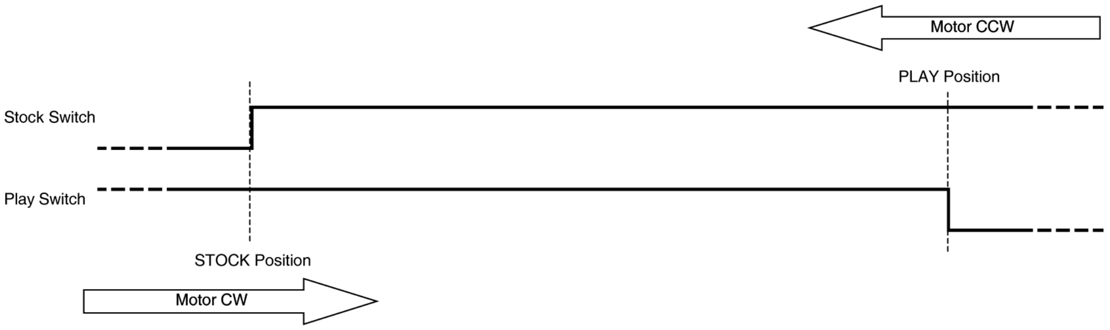
	Cam Gear	
Motor	**Home Position (UD Driving Position)**	**Play Driving Position**
CW	UD base move upwards direction 5→1	Stock → Play
CCW	UD base move downwards direction 1→5	Play → Stock

- For driving UD base up/down the cam gear must be at the home position (UD driving position) and plunger need to be activated, the switch and state change is as figure below:


Motor CCW
Tray 5
Tray 4
Tray 3
Tray 2
Tray 1 (Top Position)
UD Sensor
Top Switch
Tray 5
Tray 4
Tray 3
Tray 2
Tray 1 (Top Position)
Motor CW

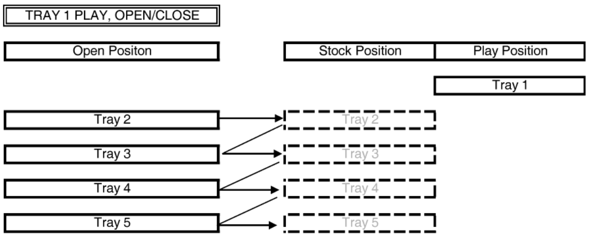
*Condition
i. Cam gear at HOME position
ii. Plunger activated (H)

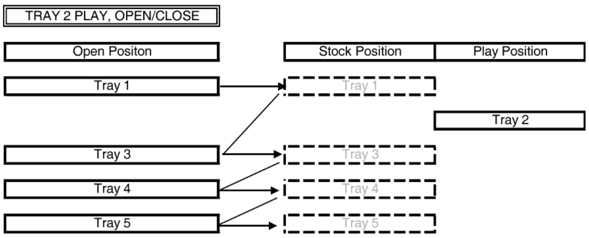
- To drive the tray(s) between STOCK/PLAY position, cam gear must be at the play driving position and plunger need to be activated, the switch and state change is as figure below:

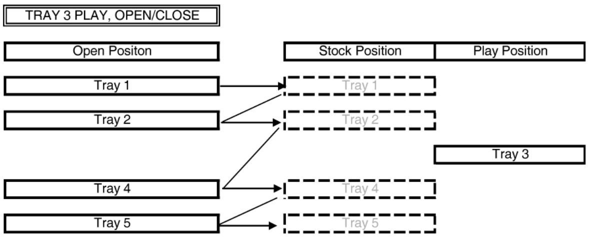

Motor CCW
PLAY Position
Stock Switch
Play Switch
STOCK Position
Motor CW

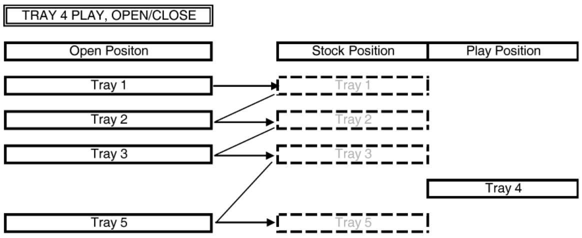
*Condition
iii. Cam gear at Play Driving position
iv. Plunger activated (H)

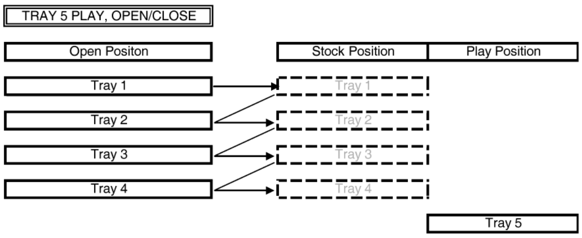
- The mechanism tray opening and closing is cycle process. It is able to open all trays in STOCK position while one of the tray is in PLAY position. The closing can be done one by one or close all at once depend on the user instruction. Below show the tray opening and closing flow.

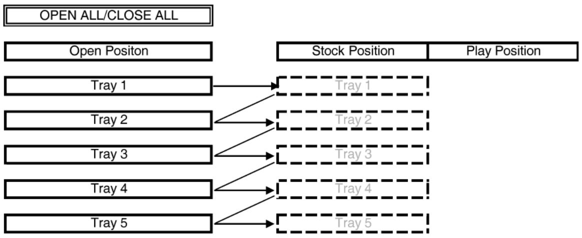

TRAY 1 PLAY, OPEN/CLOSE
Open Positon
Stock Position
Play Position
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5
Tray 2
Tray 3
Tray 4
Tray 5


TRAY 2 PLAY, OPEN/CLOSE
Open Positon
Stock Position
Play Position
Tray 1
Tray 3
Tray 4
Tray 5
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5


TRAY 3 PLAY, OPEN/CLOSE
Open Positon
Stock Position
Play Position
Tray 1
Tray 2
Tray 4
Tray 5
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5


TRAY 4 PLAY, OPEN/CLOSE
Open Positon
Stock Position
Play Position
Tray 1
Tray 2
Tray 3
Tray 5
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5


TRAY 5 PLAY, OPEN/CLOSE
Open Positon
Stock Position
Play Position
Tray 1
Tray 2
Tray 3
Tray 4
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5


OPEN ALL/CLOSE ALL
Open Positon
Stock Position
Play Position
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5
Tray 1
Tray 2
Tray 3
Tray 4
Tray 5

3.4. Switches Chattering Check

- Each input shall perform chattering check processing.

OPEN-SW	2ms Periodic sampling. It logic-decides by continuation same 5 times.
PLAY-SW	2ms Periodic sampling. It logic-decides by continuation same 5 times.
STOCK-SW	2ms Periodic sampling. It logic-decides by continuation same 5 times.
TOP-SW	2ms Periodic sampling. It logic-decides by continuation same 5 times.
HOME-SW	2ms Periodic sampling. It logic-decides by continuation same 5 times.
UD-SENSOR	2ms Periodic sampling. It logic-decides by continuation same 5 times.
CLOSE-SENSOR	2ms Periodic sampling. It logic-decides by continuation same 5 times.

3.5. Motor Movement Control

Condition	Motor	
	CW	CCW
Free	L	L
Rotate CW	H	L
Rotate CCW	L	H
Short Brake	H	H

3.6. Plunger Timing Chart

- Plunger is use for pulling the lever that a switching gear is sit on the lever. When current supply to the plunger to pulling (kick) switching gear, it will be lift up to engage to 1st gear train. When current supply to plunger is cut off (release), switching gear will be bring done by gravity force and mechanical coil spring on top of it. Plunger use for connect the driving source from motor to 2 different gear train in the mechanism, the functions of the gear trains are as below:
  1. Tray open/close
  2. Drive tray to play/stock position and TRV vertical movement

- The plunger movement is define as below:
  Kick = H, Release= L

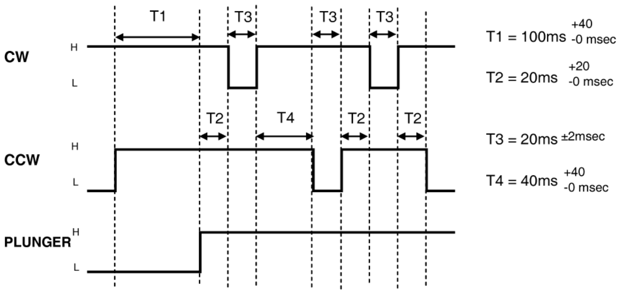
- Each time during plunger activation time (Kick/Release), the motor shall perform a short time CW and CCW rotation for release the gear side force and ensure complete gear to gear engagement.

- The basic concept of the motor rotation sequence (CW or CCW) is base on the initial and final motor rotating direction. The direction should be opposite to the initial and final motor driving direction in order to:
  1. To release the gear teeth side force
  2. To release mechanism belt tension
  3. To ensure switching gear disengage or engage into other gear´s teeth

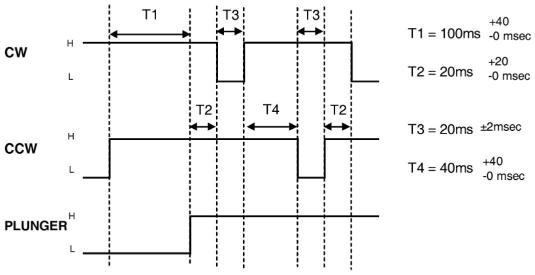
- Summary of the type of motor short rotation direction is as below:

Motor Direction	**Initial**	**Short Rotate Direction**			**Final**	**Switching Mode**
		1st	**2nd**	**3rd**		
Plunger Kick	CW	CCW	CW	CCW	CW	A
		CCW	CW	-	CCW	B
	CCW	CW	CCW	-	CW	C
		CW	CCW	CW	CCW	D
Plunger Release	CW	CCW	CW	CCW	CW	E
		CCW	CW	-	CCW	F
	CCW	CW	CCW	-	CW	G
		CW	CCW	CW	CCW	H

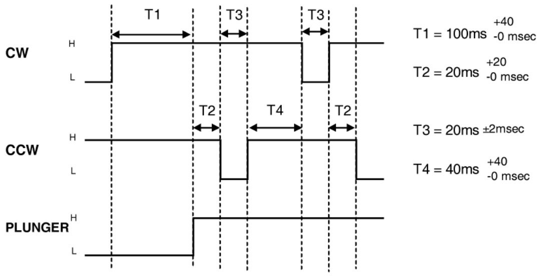
- Below are the timing charts of plunger activation time.


T1
T3
T3
T3
CW
H
L
T2
T4
T2
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

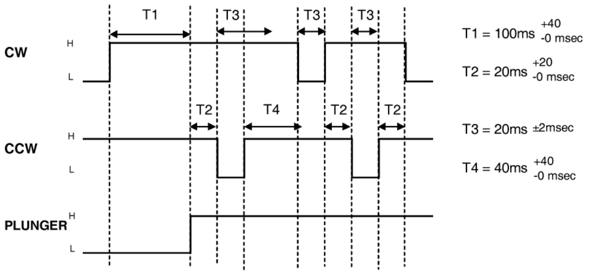
Switching Mode A


T1
T3
T3
CW
H
L
T2
T4
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

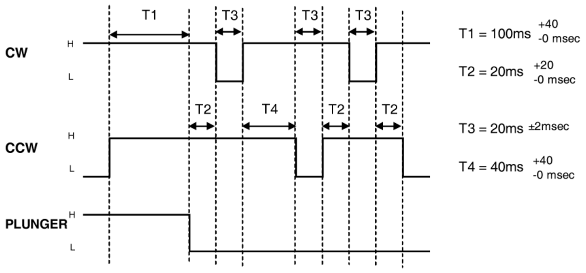
Switching Mode B


T1
T3
T3
CW
H
L
T2
T4
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

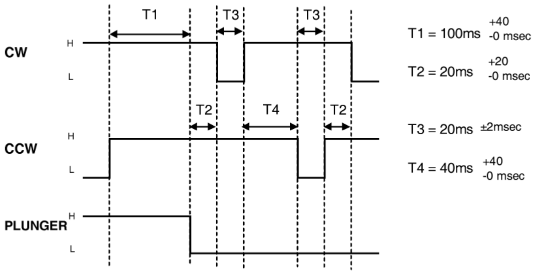
Switching Mode C


T1
T3
T3
T3
CW
H
L
T2
T4
T2
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

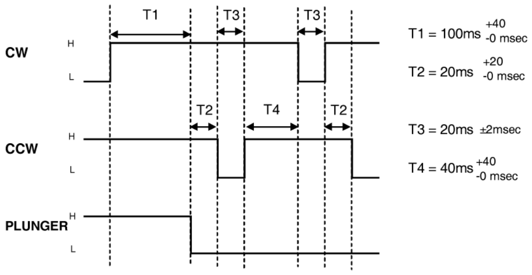
Switching Mode D


T1
T3
T3
T3
CW
H
L
T2
T4
T2
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

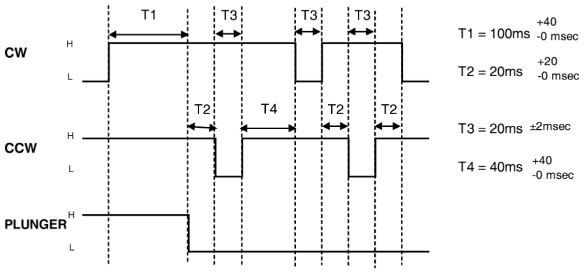
Switching Mode E


T1
T3
T3
CW
H
L
T2
T4
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

Switching Mode F


T1
T3
T3
CW
H
L
T2
T4
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

Switching Mode G


T1
T3
T3
T3
CW
H
L
T2
T4
T2
T2
CCW
H
L
PLUNGER
H
L
T1 = 100ms +40 -0 msec
T2 = 20ms +20 -0 msec
T3 = 20ms ±2msec
T4 = 40ms +40 -0 msec

Switching Mode H

- As the plunger only activate at 2 position of cam gear. The plunger mode summary as below:

Switching Position	Initial Motor Direction	Switching Mode	Initial Motor Direction	Function
Home Position	Cam gear rotate CCW to HOME Motor : **CCW**	C	UD base move from bottom to top Motor : **CW**	Tray selection from bottom to top
	Cam gear rotate CCW to HOME Motor : **CCW**	D	UD base move from top to bottom Motor : **CCW**	Tray selection from top to bottom
	UD base move from bottom to top Motor : **CW**	E	Cam gear rotate CW from HOME to Play Driving Position. Motor : **CW**	After tray selection, cam gear rotate to Play Driving Position
	UD base move from top to bottom Motor : **CCW**	G	Cam gear rotate CW from HOME to Play Driving Position. Motor : **CW**	After tray selection, cam gear rotate to Play Driving Position
Play Driving Position	Cam gear rotate CW from HOME to Play Driving Position. Motor : **CW**	A	Drive tray from STOCK position to PLAY position. Motor : **CW**	Load tray to Play
	Cam gear rotate CW from HOME to Play Driving Position. Motor : **CW**	B	Drive tray from PLAY position to STOCK position. Motor : **CCW**	Unload tray from Play to Stock
	Drive tray from STOCK position to PLAY position. Motor : **CW**	F	Cam gear rotate CCW from Play Driving Position to HOME. Motor : **CCW**	After load tray to Play, cam gear return to HOME
	Drive tray from PLAY position to STOCK position. Motor : **CCW**	H	Cam gear rotate CCW from Play Driving Position to HOME. Motor : **CCW**	After unload tray from Play, cam gear return to HOME
	Drive tray from PLAY position to STOCK position. Motor : **CCW**	G	Cam gear rotate CW from until trays full open. Motor : **CW**	Open trays while one tray Play

- Switching mode G is used during initialization to ensure that the switching gear is at the release (down) condition before the initialization process begins.

3.7. Initialization of Mechanism Unit.

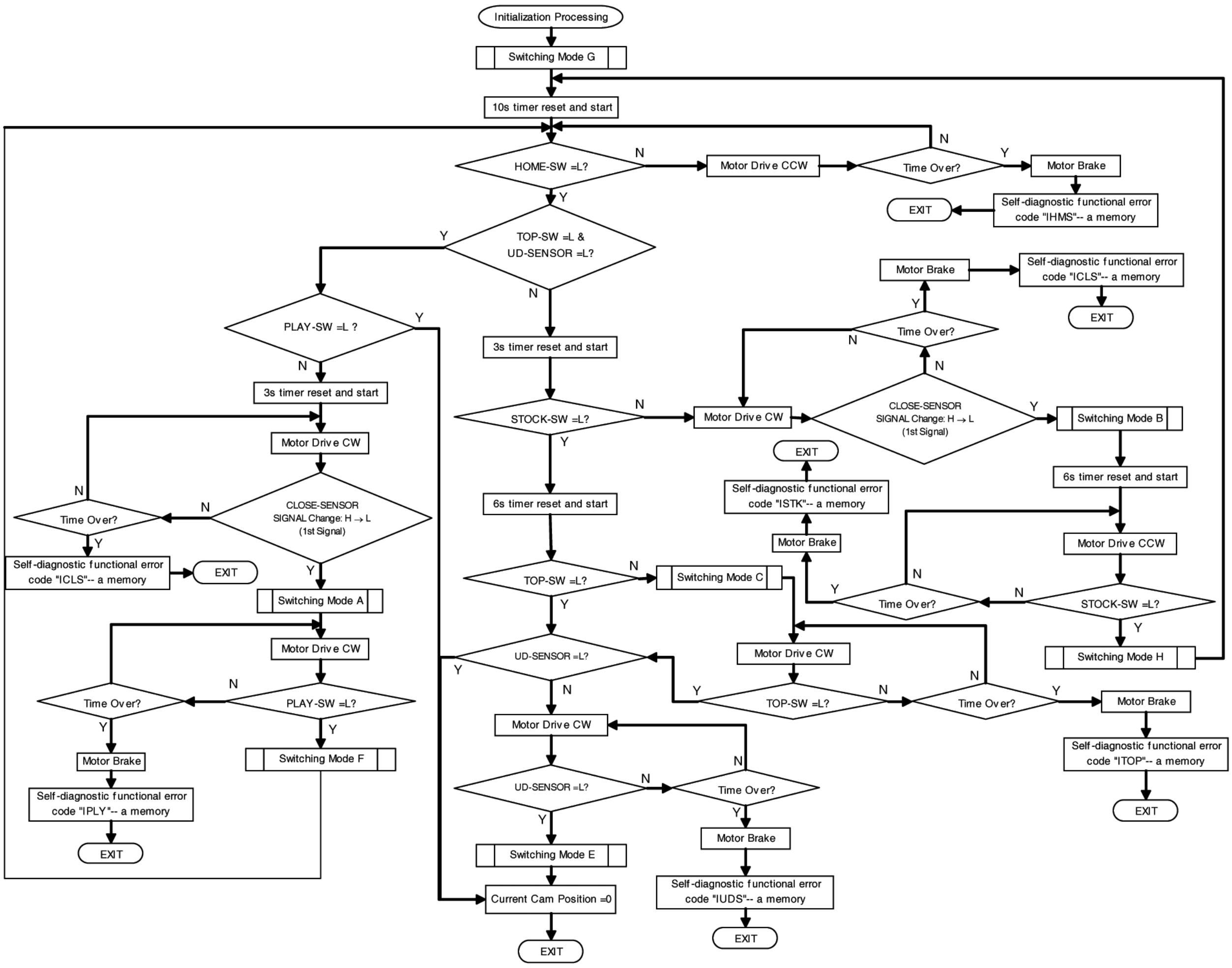
- **Mechanism Initialization** -- This mechanism is designed to operate & set to a pre-defined position to prevent malfunction when unavoidable circumstances happen. For examples: user mis-handling during transportaion or abnormal user operations.This is comply to the product shipping reliability standards.

- Mechanism is initialized when the mechanism controller is unable to detect the present condition/state of mechanism. For example, when the microcomputer carries out a cold start. (In complete unit)

- Once the initialization process is completed, the mechanism unit is set to this condition:-
  1. Tray 1 is at PLAY position (Top tray)
  2. The traverse unit is at clamping condition (PLAY SW-L)
  3. All the remaining trays are in STOCK Position (Trays 2 ~ 5)
  4. Plunger lever at release condition
  5. Cam gear is at Home position (HOME SW-L)
  6. Motor is free (CW-L, CCW-L)

  Note: This is same as shipment condition. (In complete unit)

- Below is the flow chart of the initialization process:-


Initialization Processing
Switching Mode G
10s timer reset and start
HOME-SW =L?
N
Y
Motor Drive CCW
Time Over?
N
Y
Motor Brake
Self-diagnostic functional error code "IHMS"-- a memory
EXIT
TOP-SW =L & UD-SENSOR =L?
Y
N
Motor Brake
Self-diagnostic functional error code "ICLS"-- a memory
EXIT
Time Over?
Y
N
PLAY-SW =L ?
Y
N
3s timer reset and start
3s timer reset and start
STOCK-SW =L?
N
Y
Motor Drive CW
CLOSE-SENSOR SIGNAL Change: H → L (1st Signal)
Y
N
Switching Mode B
EXIT
Self-diagnostic functional error code "ISTK"-- a memory
Motor Brake
6s timer reset and start
Motor Drive CW
Time Over?
N
N
CLOSE-SENSOR SIGNAL Change: H → L (1st Signal)
Y
Self-diagnostic functional error code "ICLS"-- a memory
EXIT
6s timer reset and start
TOP-SW =L?
N
Y
Switching Mode C
Time Over?
Y
N
N
STOCK-SW =L?
Y
Motor Drive CCW
Switching Mode A
Motor Drive CW
Time Over?
Y
N
PLAY-SW =L?
Y
Motor Brake
Self-diagnostic functional error code "IPLY"-- a memory
EXIT
Switching Mode F
UD-SENSOR =L?
Y
N
Motor Drive CW
TOP-SW =L?
Y
N
Time Over?
N
Y
Switching Mode H
Motor Brake
Self-diagnostic functional error code "ITOP"-- a memory
EXIT
Motor Drive CW
UD-SENSOR =L?
N
Y
Time Over?
N
Y
Motor Brake
Self-diagnostic functional error code "IUDS"-- a memory
EXIT
Switching Mode E
Current Cam Position =0
EXIT

The completion of Initialization process

Note:
After Initialization process, mechanism should load tray 1 to PLAY position.

3.8. Mechanism "HOME" position

- Mechanism HOME position is a starting position for few functions, such as below:
  1. Load tray from STOCK position to PLAY position
  2. Unload tray from PLAY position to STOCK position
  3. Open trays
  4. Driving UD base up/down

- Besides this, it will always return to “HOME” position after performing below functions:
  1. After tray completely clamped by Traverse unit
  2. Closing All trays
  3. Closing tray 5
  4. After completely the UD base movement

- There are 2 type of mode to go to HOME position.

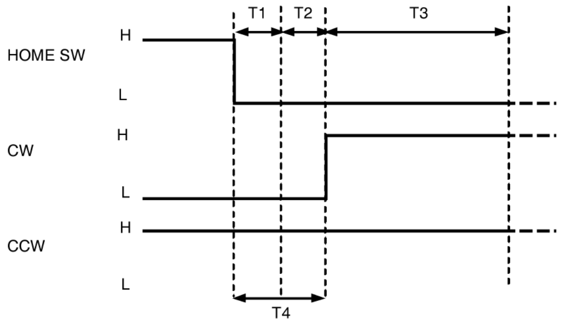
Mode 1 is to go to HOME position and motor brake and stay at HOME position, motor need longer brake time for reduce overrun of mechanical parts.

For Mode 2, after mechanism go to HOME position, motor immediately rotate reverse direction to go do loading/unloading processing, shorter brake time necessary to reduce the total mechanism operation time.

The table below is types of "GO HOME" mode and operation that use it.

GO HOME MODE 1	GO HOME MODE 2
1. After loading tray to PLAY position	1. After closing all trays (no tray at PLAY position)
2. After unloading tray to STOCK position	
3. After closing all trays (one tray at PLAY position)	

- The timing chart for the mechanism to set to “HOME” position is illustrated as below.



T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Motor Wait Time = $10\ ms^{+2ms}_{-0}$

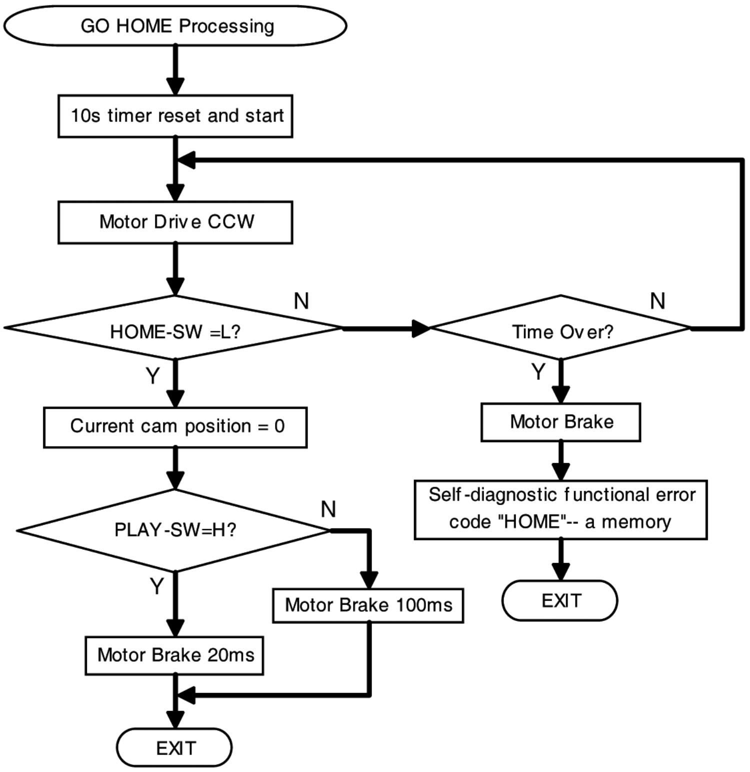
T3: Short Brake = $100\ ms \pm 10ms$ (PLAY-SW=L)

T3: Short Brake = $20\ ms \pm 10ms$ (PLAY-SW=H)

T4: T1+T2 = $20\ ms^{+4ms}_{-0}$

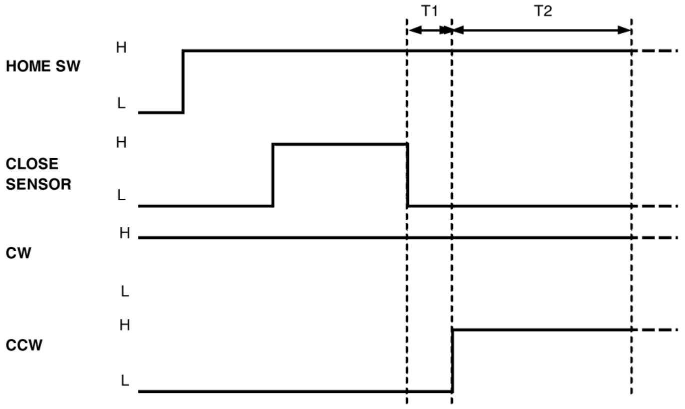
Note: T2 is time for motor free run for ensure HOME switch at stable ON condition.

- Below is the flow chart for the mechanism to set to “HOME” position.


GO HOME Processing
10s timer reset and start
Motor Drive CCW
HOME-SW =L?
N
Time Over?
N
Y
Y
Current cam position = 0
Motor Brake
Self-diagnostic functional error code "HOME"-- a memory
PLAY-SW=H?
N
Y
Motor Brake 100ms
EXIT
Motor Brake 20ms
EXIT

3.9. Mechanism "Play Driving" position

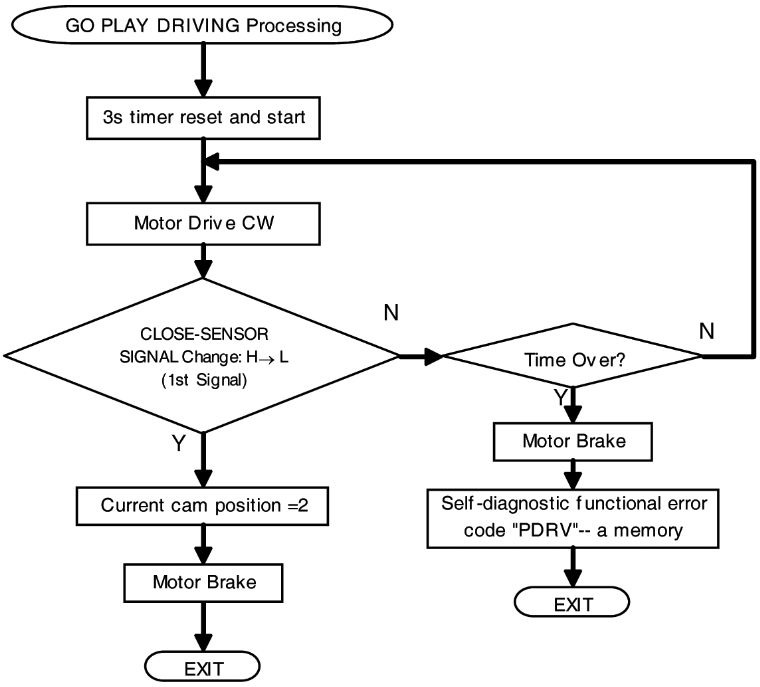
- Play driving position is a position driving source linkage to drive the tray(s) between STOCK position and PLAY position (load and unload of tray). Cam gear will rotate to this position from HOME position, and after the completion of clamping process will back to HOME position.
  For Go to Play Driving position, cam gear move from HOME position, motor brake after detect 1st time CLOSE sensor signal change from H→L


T1
T2
HOME SW
H
L
CLOSE SENSOR
H
L
CW
H
L
CCW
H
L

T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Short Brake = $100\ ms \pm 10ms$

- Below is the flow chart for the mechanism to set PLAY DRIVING position.


GO PLAY DRIVING Processing
3s timer reset and start
Motor Drive CW
CLOSE-SENSOR SIGNAL Change: H→ L (1st Signal)
N
Time Over?
N
Y
Motor Brake
Self-diagnostic functional error code "PDRV"-- a memory
EXIT
Y
Current cam position =2
Motor Brake
EXIT

3.10. Trays Operation

3.10.1. Tray ‘Open’ Operation

- Changer mechanisms are required to open trays to load a disc. This mechanism features an "All Open" or "Change all one by one" function for quick & easy disc change. There are 3 kinds of "Tray Open" conditions.
  1. **All trays open**

     Occurs when OPEN/CLOSE button is pressed, playing tray will be driven to STOCK position and all trays will driven to OPEN position. All trays will remain open until "DISC CHANGE" or "OPEN/CLOSE" is pressed. When "DISC CHANGE" is pressed, the upper most tray will close while "OPEN/CLOSE" is close all trays.
  2. **Open selected tray while one tray at PLAY position**

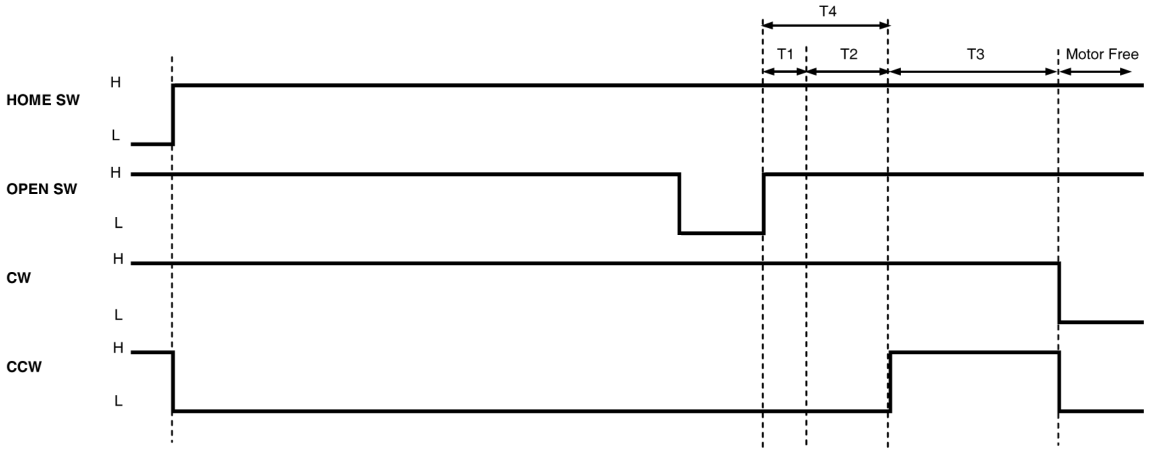
     Occurs when specify tray is selected to be opened while one tray is at PLAY position. This operation never disturbs the playing disc operation and allow user to change desire disc on specific tray.
  3. **Direct open playing tray**

     Occurs only when the user selects to open playing tray. Tray at PLAY position will stop recording/reproducing process and being driven to STOCK position. This will follow by driven all trays to OPEN position and trays closing until the previous playing tray expose for disc changing.Example: User press "DISC CHANGE" + "DISC 3". Mechanism opens all the trays, then closes trays 1 & 2 respectively exposing the tray 3.

- The timing chart for both positions is the same, motor rotate CW direction, until OPEN SW changing signal H→ L → H, motor need to continue run for 45ms.

- Motor free at the end of tray open, this is for enable the tray to be manually pushing by user.

- Below is the timing chart for tray opening.



T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Motor Wait Time = $45\ ms^{+2ms}_{-0}$

T3: Short Brake = $100\ ms \pm 10ms$

T4: T1+T2 = $55\ ms^{+4ms}_{-0}$

Note: T2 is time for motor free run for ensure protrude trays to full stroke condition.

- For all type of trays opening, either 4 trays (open remaining) or 5 trays (all open) will be set to OPEN position.

3.10.2. Tray Closing Operation

- The following action is tray closing. For this mechanism, there are 3 types of trays closing also.

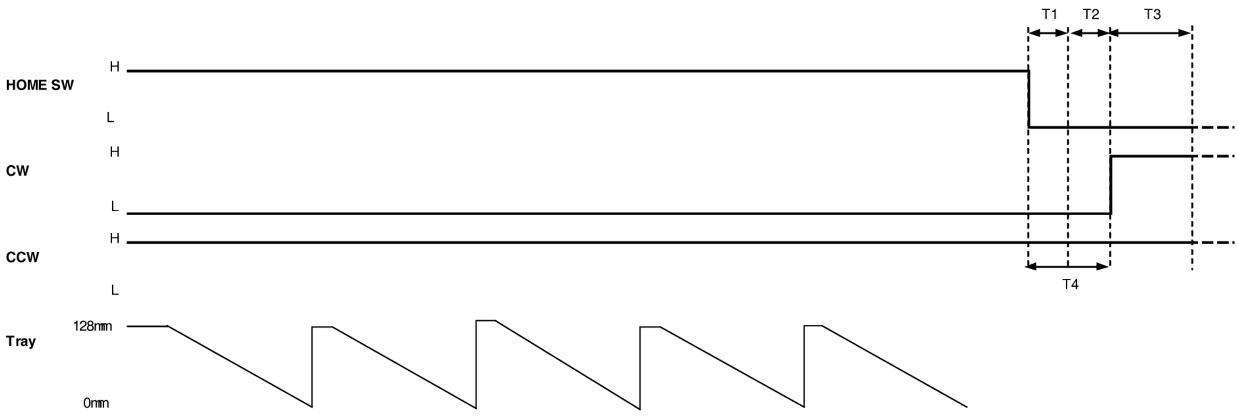
1. **All trays close**
   When user press "OPEN/CLOSE" after trays open, all trays (at any condition) will being driven to STOCK position.
2. **Auto Tray Close**
   This closing operation is an internal operation in the mechanism. This operation completes the open selected tray function. Mechanism uses this operation to drive trays that cover top surface of desire tray to STOCK position and then expose the selected tray for user to do disc exchanging.
3. **Change**
   When user press "CHANGE", one tray will be driven to STOCK position. This operation is for changing disc one by one from top to bottom. The operation each time will only drive the upper most tray to STOCK position, it can be only being interrupt by "OPEN/CLOSE". If the "CHANGE" being pressed during one tray is closing, mechanism will close the second tray immediately after 1st tray. The number of tray will be closed equal to number time of "CHANGE button" being pressed.

- All trays close can occurs anytime when there is tray at open condition. The all trays close processing is used when mechanism carry out the function as:

1. Close Tray 5
2. Close Tray 4 while tray 5 is in PLAY position
3. User press OPEN/CLOSE to instruct all trays close.

- Mechanism will close all the trays by rotating cam gear at CCW direction until detect HOME position

- Below is the timing chart for tray close (until detect HOME position).



T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Motor Wait Time = $10\ ms^{+2ms}_{-0}$

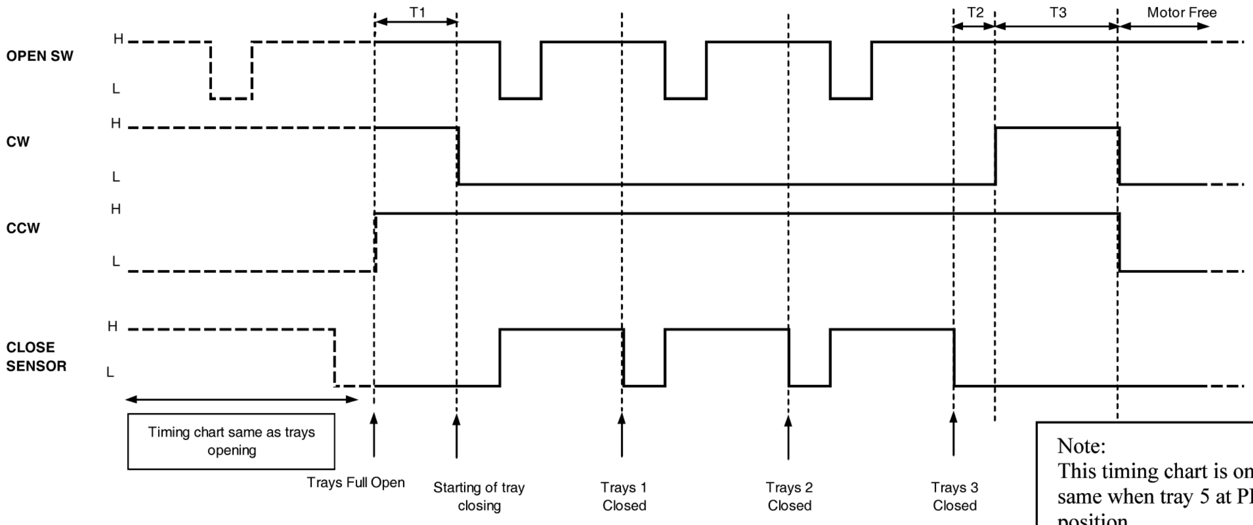
T3: Short Brake = $100\ ms \pm 10ms$

T4: T1+T2 = $20\ ms^{+4ms}_{-0}$

- Table below explain the function of open selected tray while one tray at PLAY position. This table indicated the possible tray at playing trays. For opened tray, all trays will be open except the tray at PLAY position. Trays will close to expose the selected tray for user to input or change the disc.

	OPEN POSITION	STOCK POSITION	PLAY POSITION	
Function	Tray Opened	Tray Closed	Possible Playing Tray	Micro-P Command
Open Tray 1	Tray 1 Tray 2 Tray 3 Tray 4 Tray 5			Tray Open → End
Open Tray 2	Tray 2 Tray 3 Tray 4 Tray 5	Tray 1		Tray Open → Auto Close Tray 1
Open Tray 3	Tray 3 Tray 4 Tray 5	Tray 1 Tray 2		Tray Open → Auto Close Tray 1→ Auto Close Tray 2
Open Tray 4	Tray 4 Tray 5	Tray 1 Tray 2 Tray 3		Tray Open → Auto Close Tray 1→ Auto Close Tray 2 → Auto Close Tray 3
Open Tray 5	Tray 5	Tray 1 Tray 2 Tray 3 Tray 4		Tray Open → Auto Close Tray 1→ Auto Close Tray 2 → Auto Close Tray 3 → Auto Close Tray 4

- Timing chart below, shown an example of user select to open tray 4 only.


T1
T2
T3
Motor Free
OPEN SW
H
L
CW
H
L
CCW
H
L
CLOSE SENSOR
H
L
Timing chart same as trays opening
Trays Full Open
Starting of tray closing
Trays 1 Closed
Trays 2 Closed
Trays 3 Closed

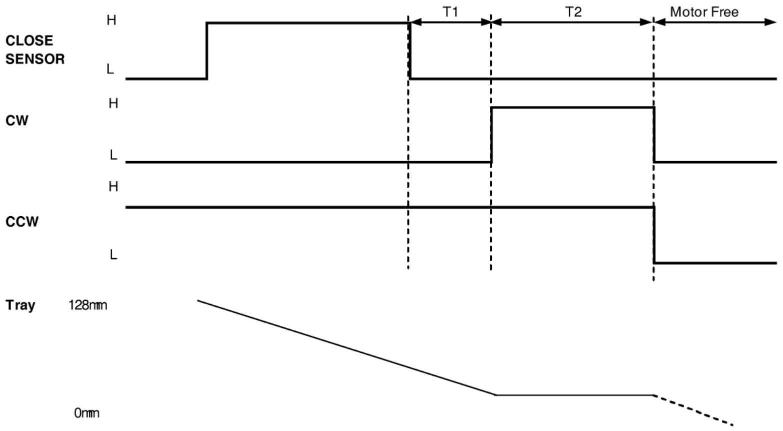
Note:
This timing chart is only same when tray 5 at PLAY position.

T1: Short Brake = $20\ ms \pm 10ms$
T2: Chattering Check = $10\ ms^{+2ms}_{-0}$
T3: Short Brake = $100\ ms \pm 10ms$

- The "Change" operation is to close one tray each time when "CHANGE" is pressed. This is the basic operation of "auto tray close". The "change" operation will stop after detect a signal change in CLOSE-SENSOR while "auto tray close" count the number of CLOSE-SENSOR signal change and stop at before selected tray start to move to STOCK position.

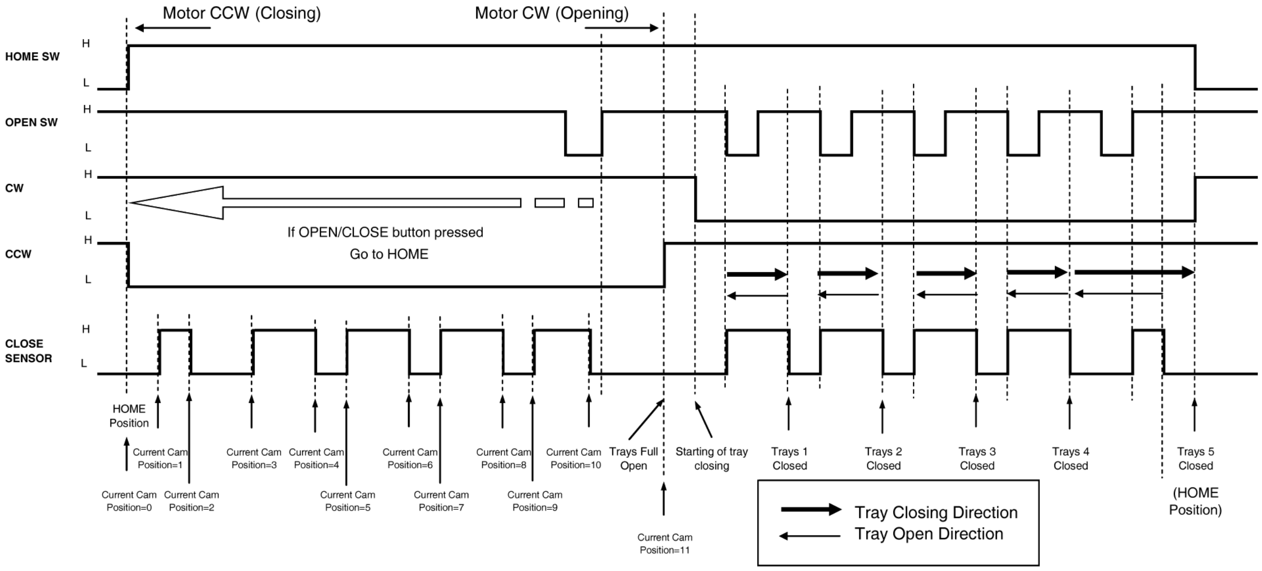
  If there is a case where user select a upper level tray of current tray in PLAY position to be closed, (e.g. current tray at PLAY position is tray 4, user select tray 3 to be open), micro-p counting of CLOSE sensor signal must done until tray 4 position, before motor brake. The reason is to eliminate long waiting time for the next tray closing.

- Below is the timing chart of tray closing (Change Operation):-

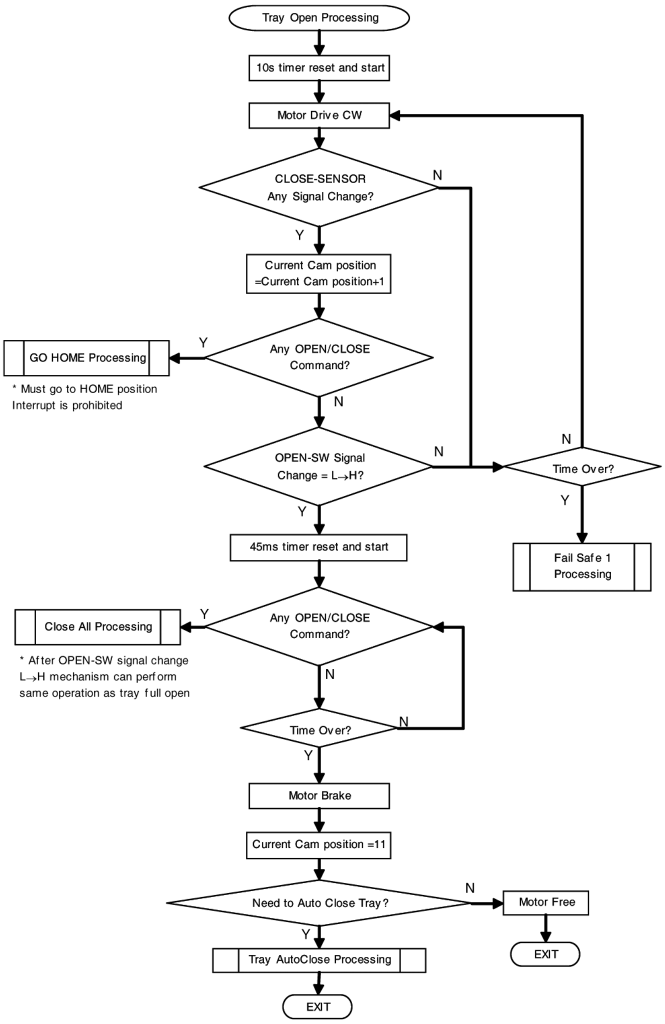

T1
T2
Motor Free
CLOSE SENSOR
H
L
CW
H
L
CCW
H
L
Tray
128mm
0mm

T1: Chattering Check = $10\ ms^{+2ms}_{-0}$
T2: Short Brake = $100\ ms \pm 10ms$

- Tray opening and closing is control by cam gear and CLOSE-SENSOR signal. OPEN-SW is only use for full open operation in order to get more accurate tray stroke. Figure below show the cam gear rotation direction for tray opening and closing, and cam important position.


Motor CCW (Closing)
Motor CW (Opening)
HOME SW
OPEN SW
CW
CCW
CLOSE SENSOR
H
L
If OPEN/CLOSE button pressed
Go to HOME
HOME Position
Current Cam Position=0
Current Cam Position=1
Current Cam Position=2
Current Cam Position=3
Current Cam Position=4
Current Cam Position=5
Current Cam Position=6
Current Cam Position=7
Current Cam Position=8
Current Cam Position=9
Current Cam Position=10
Current Cam Position=11
Trays Full Open
Starting of tray closing
Trays 1 Closed
Trays 2 Closed
Trays 3 Closed
Trays 4 Closed
Trays 5 Closed
(HOME Position)
Tray Closing Direction
Tray Open Direction

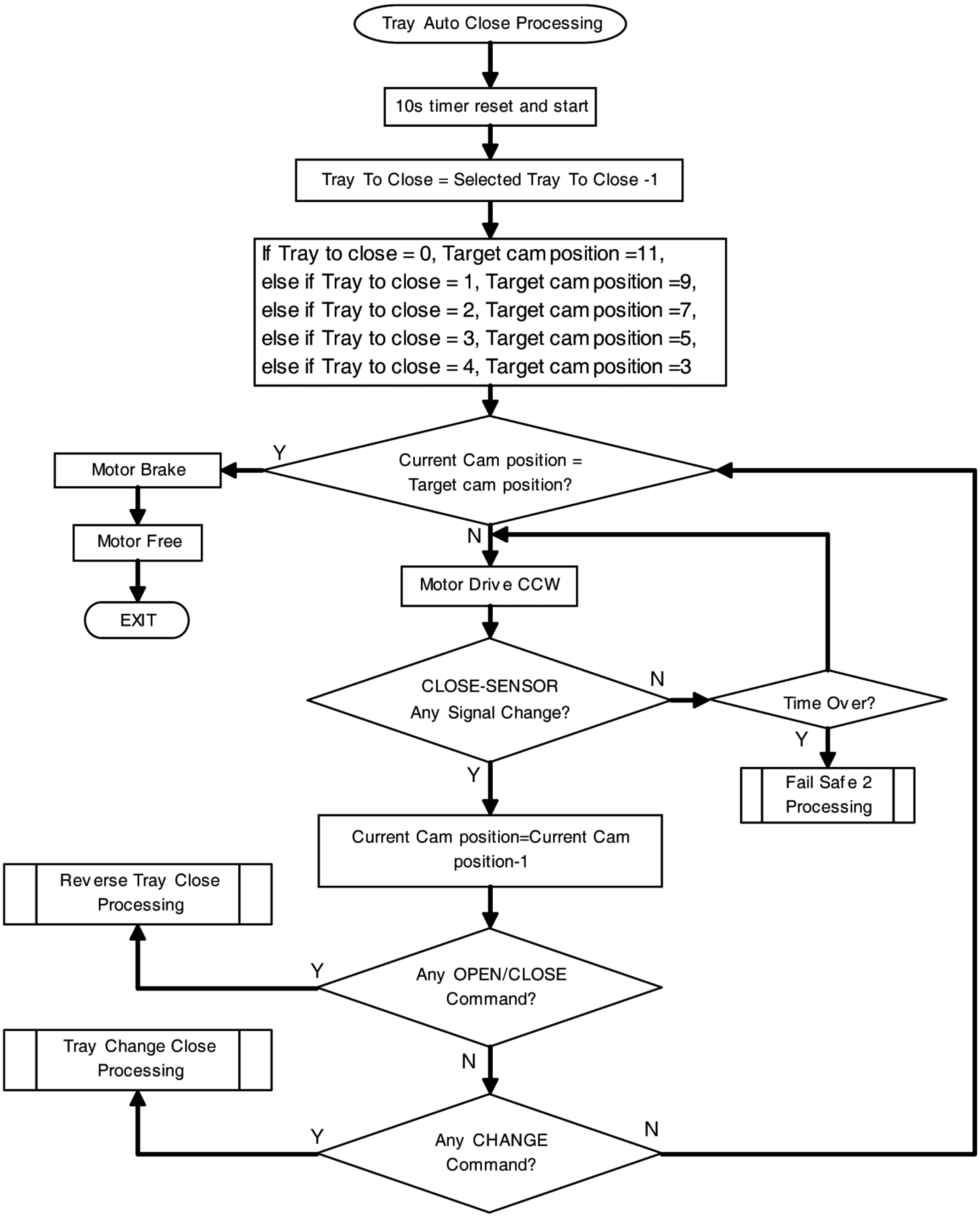
- Below is the flow chart for tray open processing.

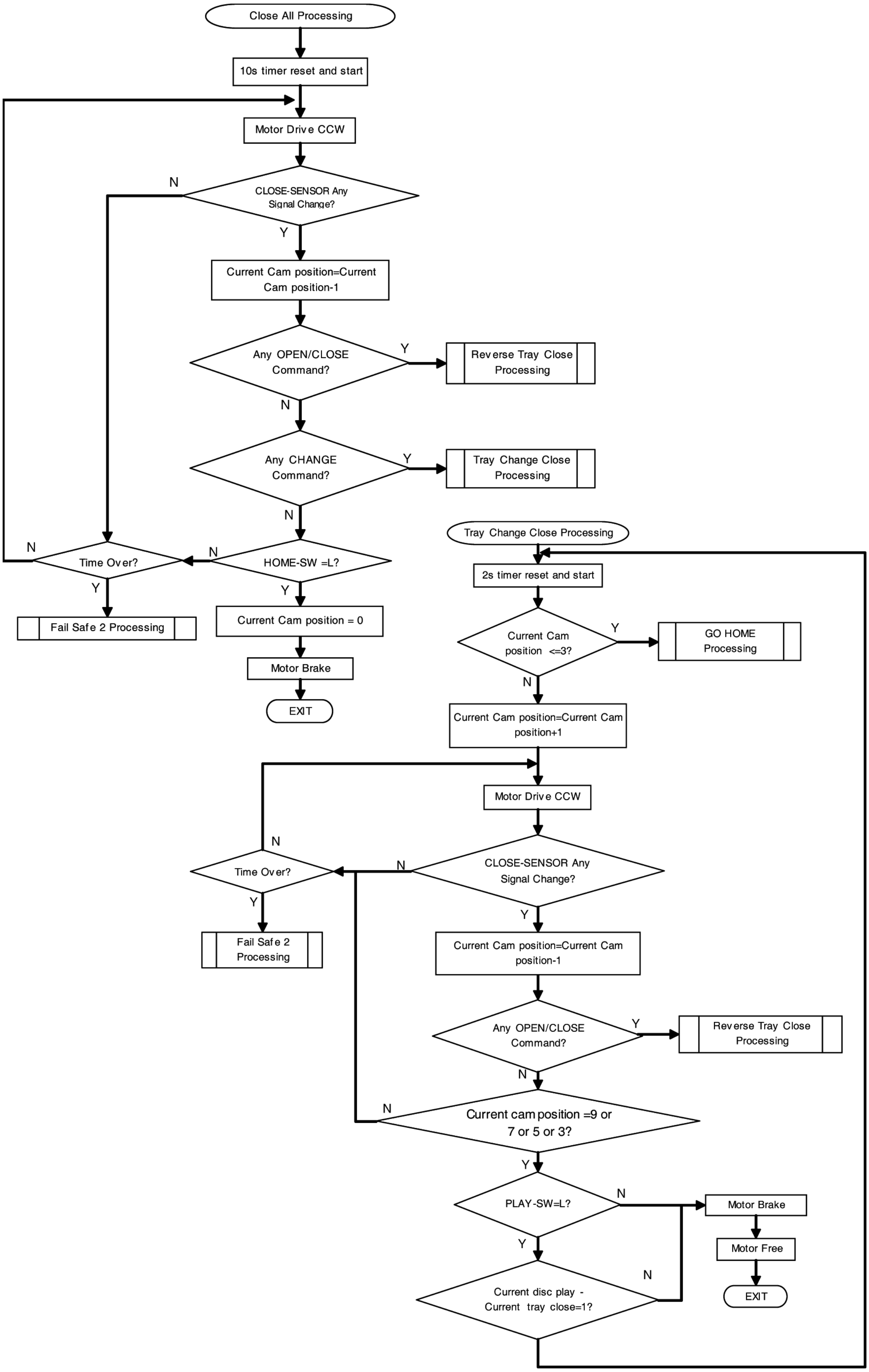

Tray Open Processing
10s timer reset and start
Motor Drive CW
CLOSE-SENSOR Any Signal Change?
Y
N
Current Cam position =Current Cam position+1
Any OPEN/CLOSE Command?
GO HOME Processing
* Must go to HOME position Interrupt is prohibited
OPEN-SW Signal Change = L→H?
Time Over?
Fail Safe 1 Processing
45ms timer reset and start
Any OPEN/CLOSE Command?
Close All Processing
* After OPEN-SW signal change L→H mechanism can perform same operation as tray full open
Time Over?
Motor Brake
Current Cam position =11
Need to Auto Close Tray?
Motor Free
EXIT
Tray AutoClose Processing
EXIT

- The flow charts below shown the types of tray close processing, for tray auto close processing is use if user select a specify tray to be close automatically after trays full open.

- Tray change close processing use if use select a function and want to change disc one by one from top tray to bottom tray.

- Close all processing is use when user wants to close all trays at once, or want to close tray no.5 or close tray no.4 while tray no. 5 is at PLAY position.

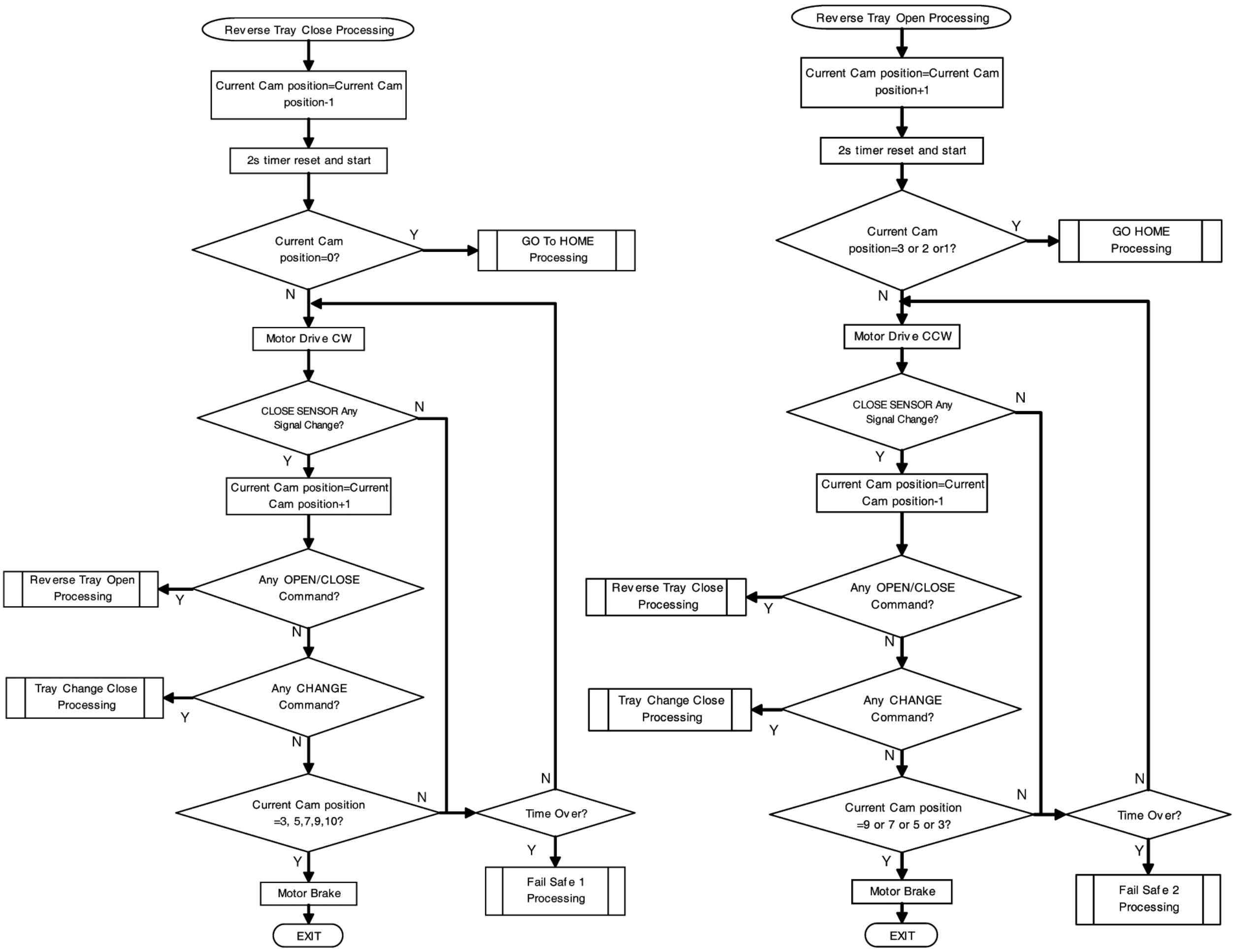

Tray Auto Close Processing
10s timer reset and start
Tray To Close = Selected Tray To Close -1
If Tray to close = 0, Target cam position =11,
else if Tray to close = 1, Target cam position =9,
else if Tray to close = 2, Target cam position =7,
else if Tray to close = 3, Target cam position =5,
else if Tray to close = 4, Target cam position =3
Current Cam position = Target cam position?
Y
Motor Brake
Motor Free
EXIT
N
Motor Drive CCW
CLOSE-SENSOR Any Signal Change?
N
Time Over?
Y
Fail Safe 2 Processing
Y
Current Cam position=Current Cam position-1
Reverse Tray Close Processing
Y
Any OPEN/CLOSE Command?
N
Tray Change Close Processing
Y
Any CHANGE Command?
N


Close All Processing
10s timer reset and start
Motor Drive CCW
CLOSE-SENSOR Any Signal Change?
N
Y
Current Cam position=Current Cam position-1
Any OPEN/CLOSE Command?
Y
Reverse Tray Close Processing
N
Any CHANGE Command?
Y
Tray Change Close Processing
N
HOME-SW =L?
N
Time Over?
N
Y
Fail Safe 2 Processing
Y
Current Cam position = 0
Motor Brake
EXIT
Tray Change Close Processing
2s timer reset and start
Current Cam position <=3?
Y
GO HOME Processing
N
Current Cam position=Current Cam position+1
Motor Drive CCW
CLOSE-SENSOR Any Signal Change?
N
Time Over?
N
Y
Fail Safe 2 Processing
Y
Current Cam position=Current Cam position-1
Any OPEN/CLOSE Command?
Y
Reverse Tray Close Processing
N
Current cam position =9 or 7 or 5 or 3?
N
Y
PLAY-SW=L?
N
Motor Brake
Motor Free
EXIT
Y
Current disc play - Current tray close=1?
N

- When there is a OPEN/CLOSE button pressed during tray open or tray close operation. Motor will rotate revere direction. There are 2 type of cases, where 1st is before full open condition (open/close gear assembly still resting) and the 2nd is after trays full open condition. For the 1st condition, motor will rotate the cam gear to move between HOME direction and tray open

While for the 2nd case, cam gear inside mechanism will move between specific positions by checking CLOSE-SENSOR signal change.

- The flow chart for both open reverse (when tray opening motor reverse) and close reverse (when tray closing motor reverse) is as below. The operation use when user press OPEN/CLOSE button during tray is opening or closing.


Reverse Tray Close Processing
Current Cam position=Current Cam position-1
2s timer reset and start
Current Cam position=0?
Y
GO To HOME Processing
N
Motor Drive CW
CLOSE SENSOR Any Signal Change?
N
Y
Current Cam position=Current Cam position+1
Reverse Tray Open Processing
Y
Any OPEN/CLOSE Command?
N
Tray Change Close Processing
Y
Any CHANGE Command?
N
Current Cam position =3, 5,7,9,10?
N
Time Over?
N
Y
Fail Safe 1 Processing
Y
Motor Brake
EXIT
Reverse Tray Open Processing
Current Cam position=Current Cam position+1
2s timer reset and start
Current Cam position=3 or 2 or1?
Y
GO HOME Processing
N
Motor Drive CCW
CLOSE SENSOR Any Signal Change?
N
Y
Current Cam position=Current Cam position-1
Reverse Tray Close Processing
Y
Any OPEN/CLOSE Command?
N
Tray Change Close Processing
Y
Any CHANGE Command?
N
Current Cam position =9 or 7 or 5 or 3?
N
Time Over?
N
Y
Fail Safe 2 Processing
Y
Motor Brake
EXIT

3.11. Drive tray between STOCK and PLAY position

- Play position is defined as the position whereas the tray is aligned to be played over the CD/ DVD unit. Only a single tray can be at this location & note that the traverse mechanism is at its clamped position. Play position can be either disc playing (actively reading disc data) or its not playing (no data reading).

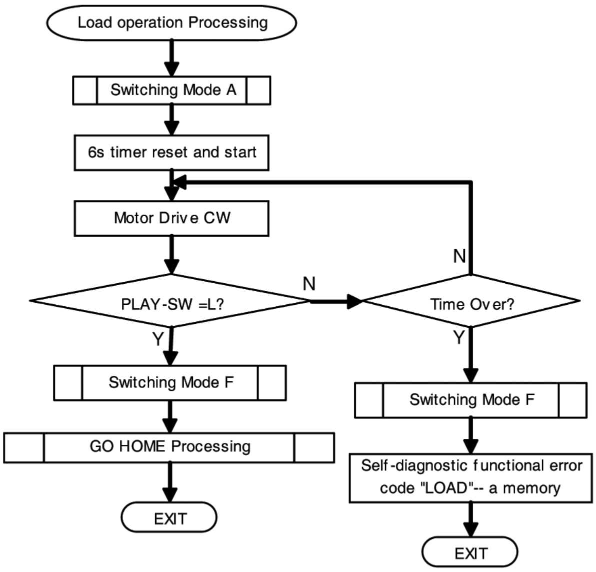
  * **Shipment** or **Initialize** positions always finish with a tray at this location.

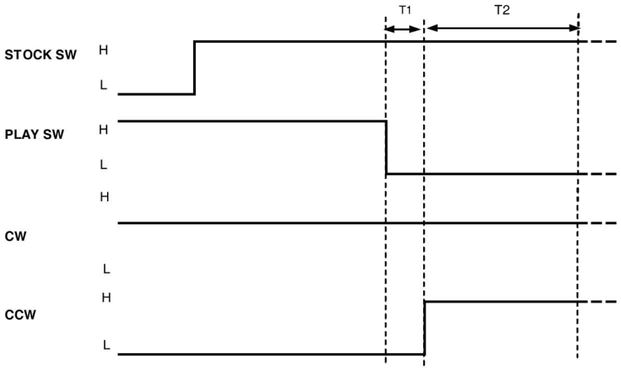
- Loading operation is process to move tray from STOCK position to PLAY position.

- Unloading operation is process to move tray from PLAY position to STOCK position.

- If there is a certain operation key pressed at the middle of movement. The reversal operation is necessary. The reversal operation should carry out after the tray arriving the STOCK position or PLAY position.

- The flow chart and timing chart for load a disc from STOCK position to PLAY position is as below:

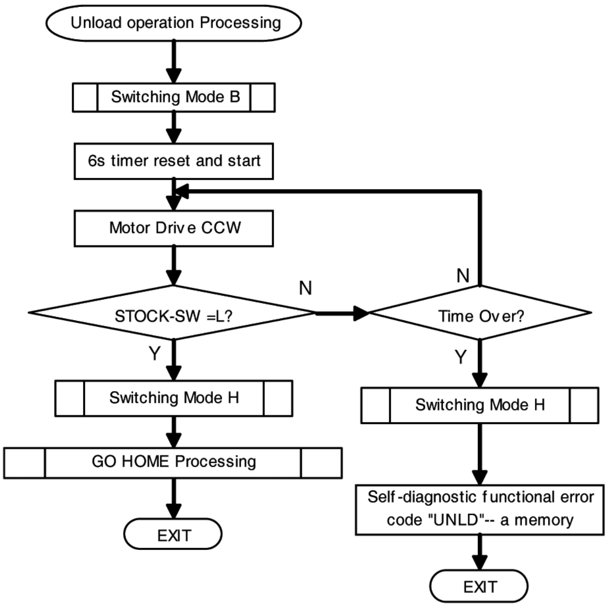

Load operation Processing
Switching Mode A
6s timer reset and start
Motor Drive CW
PLAY-SW =L?
N
Y
Time Over?
N
Y
Switching Mode F
GO HOME Processing
EXIT
Switching Mode F
Self-diagnostic functional error code "LOAD"-- a memory
EXIT

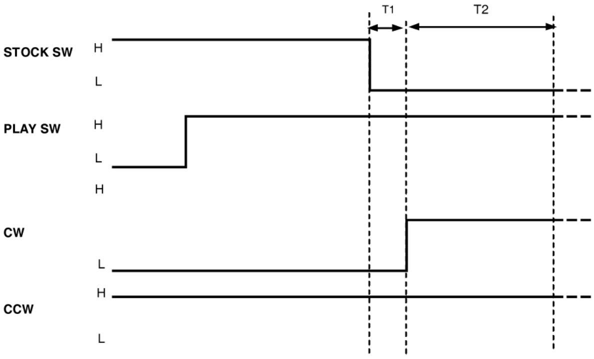


T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Short Brake = $100\ ms \pm 10ms$

- The flow chart and timing chart for unload a disc from PLAY position to STOCK position is as below:


Unload operation Processing
Switching Mode B
6s timer reset and start
Motor Drive CCW
STOCK-SW =L?
N
Y
Time Over?
N
Y
Switching Mode H
GO HOME Processing
EXIT
Switching Mode H
Self-diagnostic functional error code "UNLD"-- a memory
EXIT



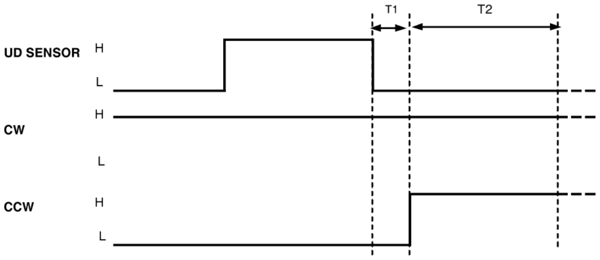
T1: Chattering Check = $10\ ms^{+2ms}_{-0}$

T2: Short Brake = $100\ ms \pm 10ms$

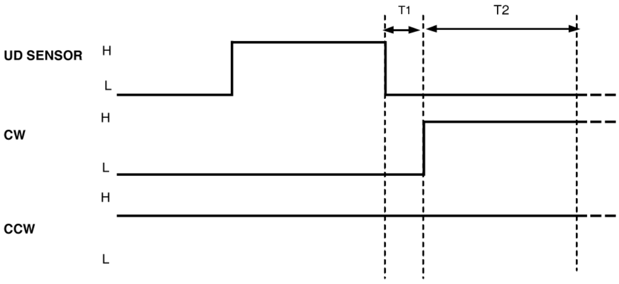
3.12. Selection of Tray by Moving UD base Up/down

- Tray alignment & selection is achieved by UD (up/down) movement, whereas the Mechanism vertically aligns itself to the selected tray to be driven to PLAY position or STOCK position. The upper most tray is defined as tray 1 and bottom most tray is defined as tray 5. Counting is achieved by resetting during initialization to the TOP-SW (tray 1) and counting the signal change by UD-SENSOR.

- Below are the timing chart for UD base tray selection Up/down:


T1
T2
UD SENSOR
H
L
CW
H
L
CCW
H
L

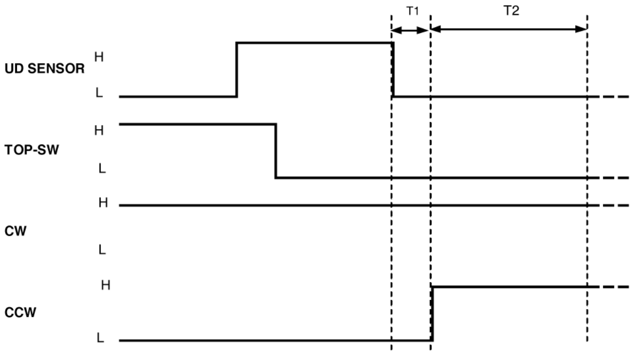
UD base move up 5 → 2


T1
T2
UD SENSOR
H
L
CW
H
L
CCW
H
L

UD base move up 1 → 5

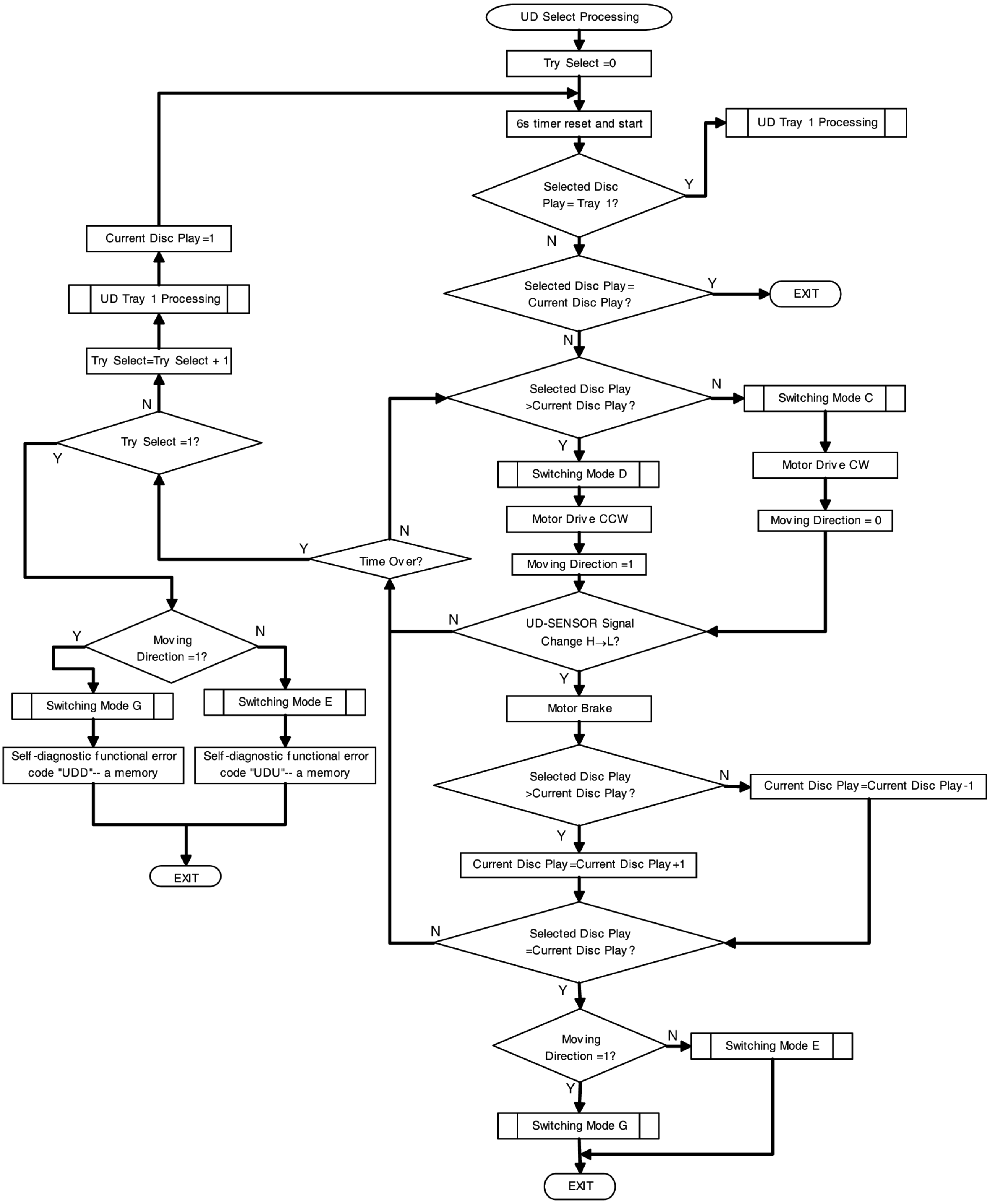
T1: Chattering Check = $10\ ms^{+2ms}_{-0}$
T2: Short Brake = $100\ ms \pm 10ms$

- Tray 1 is the reset position for UD base up/down processing. The position should be unique; a TOP-SW is use in this purpose.

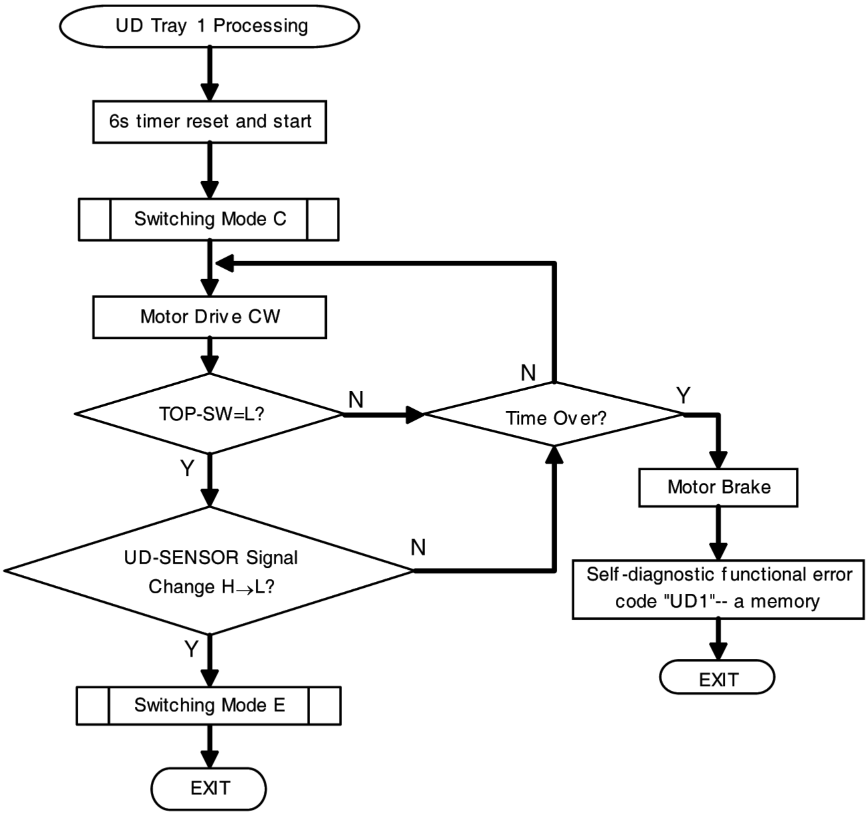

T1
T2
UD SENSOR
H
L
TOP-SW
H
L
CW
H
L
CCW
H
L

T1: Chattering Check = $10\ ms^{+2ms}_{-0}$
T2: Short Brake = $100\ ms \pm 10ms$

- Below is the flow chart for UD selection processing.


UD Select Processing
Try Select =0
6s timer reset and start
UD Tray 1 Processing
Selected Disc Play = Tray 1?
Y
N
Selected Disc Play = Current Disc Play?
Y
EXIT
N
Selected Disc Play >Current Disc Play?
N
Switching Mode C
Y
Switching Mode D
Motor Drive CCW
Moving Direction =1
Motor Drive CW
Moving Direction = 0
UD-SENSOR Signal Change H→L?
N
Y
Motor Brake
Selected Disc Play >Current Disc Play?
N
Current Disc Play=Current Disc Play-1
Y
Current Disc Play=Current Disc Play+1
Selected Disc Play =Current Disc Play?
N
Y
Moving Direction =1?
N
Switching Mode E
Y
Switching Mode G
EXIT
Time Over?
N
Y
Try Select =1?
N
Y
Try Select=Try Select + 1
UD Tray 1 Processing
Current Disc Play=1
Moving Direction =1?
Y
N
Switching Mode G
Switching Mode E
Self-diagnostic functional error code "UDD"-- a memory
Self-diagnostic functional error code "UDU"-- a memory
EXIT

- For tray 1 selection, flow chart below will be used.


UD Tray 1 Processing
6s timer reset and start
Switching Mode C
Motor Drive CW
TOP-SW=L?
N
Y
Time Over?
N
Y
Motor Brake
UD-SENSOR Signal Change H→L?
N
Y
Self-diagnostic functional error code "UD1"-- a memory
EXIT
Switching Mode E
EXIT

3.13. Fail Safe

- Fail safe function is for purpose of recovery of tray movement if the mechanism is not able to carry out tray open or close within a specified time.

Fail safe 1: Tray can not open: Fail safe - move all trays to home position

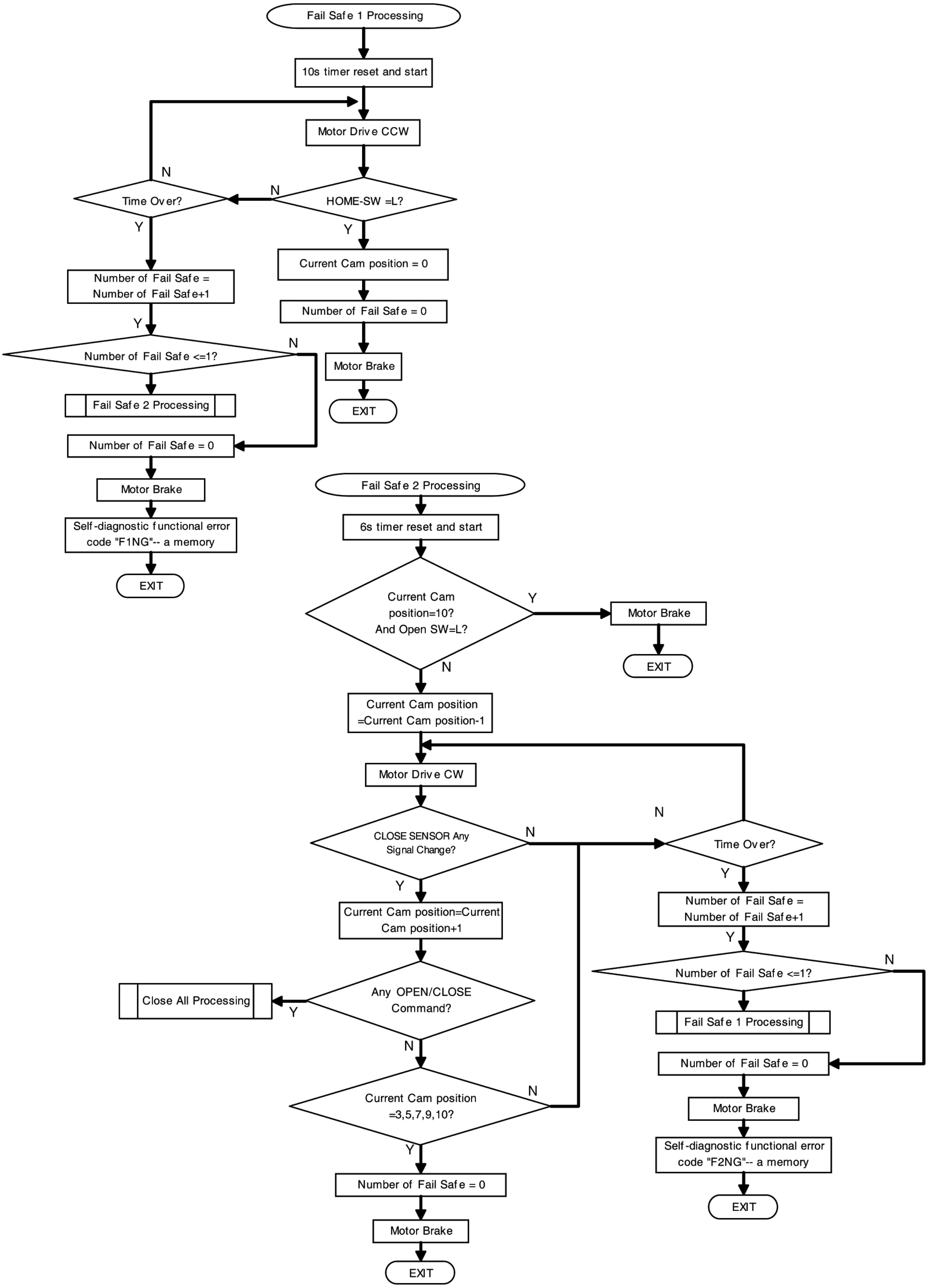
Fail safe 2: Tray can not close: Fail safe - move to next close sensor transition position

Note : For Fail safe 2 :

1. If done on tray 1 - will fully go to Open position because OC gears are fully engaged
2. If done on either one of the remaining trays (2, 3, 4 & 5) - will only release the gear engagement and leave the tray at free condition, tray can only open manually by user.

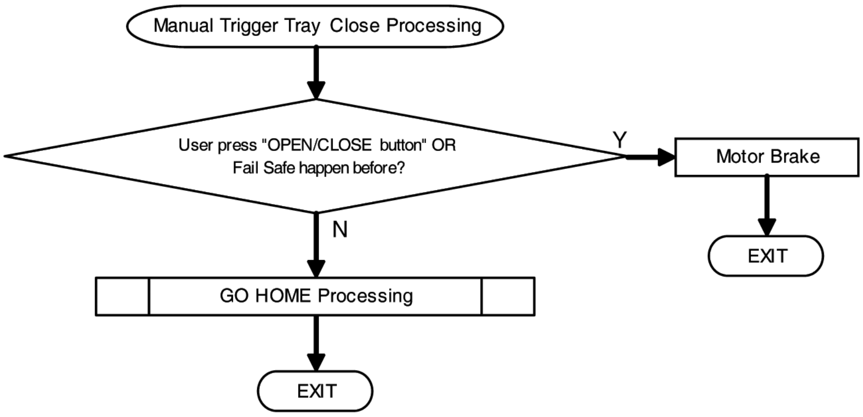
After fail safe, any subsequent button pressed on main set, the mechanism must follow "GO HOME" flowchart.

- Fail safe flow chart are shown as below:


Fail Safe 1 Processing
10s timer reset and start
Motor Drive CCW
HOME-SW =L?
N
Time Over?
N
Y
Y
Current Cam position = 0
Number of Fail Safe = 0
Motor Brake
EXIT
Number of Fail Safe = Number of Fail Safe+1
Y
Number of Fail Safe <=1?
N
Fail Safe 2 Processing
Number of Fail Safe = 0
Motor Brake
Self-diagnostic functional error code "F1NG"-- a memory
EXIT
Fail Safe 2 Processing
6s timer reset and start
Current Cam position=10? And Open SW=L?
Y
Motor Brake
EXIT
N
Current Cam position =Current Cam position-1
Motor Drive CW
CLOSE SENSOR Any Signal Change?
N
N
Time Over?
Y
Current Cam position=Current Cam position+1
Number of Fail Safe = Number of Fail Safe+1
Y
Number of Fail Safe <=1?
N
Close All Processing
Y
Any OPEN/CLOSE Command?
Fail Safe 1 Processing
N
Number of Fail Safe = 0
Current Cam position =3,5,7,9,10?
N
Motor Brake
Y
Self-diagnostic functional error code "F2NG"-- a memory
Number of Fail Safe = 0
EXIT
Motor Brake
EXIT

3.14. Manual Trigger Tray Close

- When user push open tray at full open position, user may able to activate tray to be all close. This function will be disable if user happen to press "OPEN/CLOSE" button and fail safe happen before.


Manual Trigger Tray Close Processing
User press "OPEN/CLOSE button" OR Fail Safe happen before?
Y
Motor Brake
EXIT
N
GO HOME Processing
EXIT

3.15. Changer Error Code

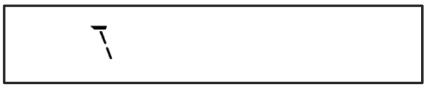
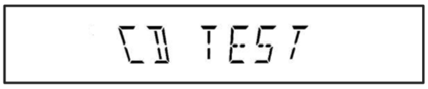
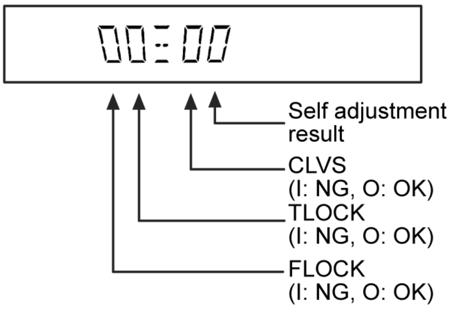
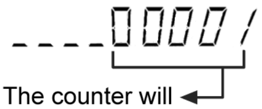
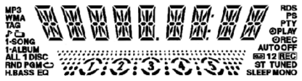
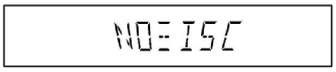
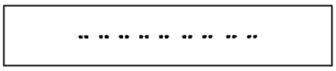
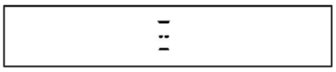
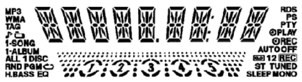
· The error code summary of CRS1 changer is as below:

Error Code	Operation
IHMS	Cam gear rotate to HOME position
ICLS	Cam gear rotate to Play Driving position to drive playing tray to STOCK position
ISTK	Move tray drive rack to STOCK position (drive tray to STOCK position)
IPLY	Move tray drive rack to PLAY position (drive tray to PLAY position)
ITOP	Move UD rack R to front direction (raise UD base to top position)
IUDS	After TOP-SW detect, UD rack move to tray 1 position
HOME	After load tray to PLAY position, cam gear move to HOMEAfter unload to STOCK position, cam gear move to HOME After all tray close, cam gear go to HOME position
LOAD	Tray move from STOCK to PLAY position
UNLD	Tray move from PLAY to STOCK position
PDRV	Cam gear move from HOME to Play Driving position
UDU	UD base move at up direction (from tray 5 to tray 2)
UDD	UD base move at down direction (from tray 1 to tray 5)
UD1	UD base move to tray 1
F1NG	Fail safe 1 NG (Fail safe 1 unsuccessful then try Fail Safe 2 also unsuccesful)
F2NG	Fail safe 2 NG (Fail safe 2 unsuccessful then try Fail Safe 1 also unsuccesful)

4 Self diagnosis and special mode setting

This unit is equipped with functions for checking and inspecting namely: Self-Diagnostic and Test Mode.

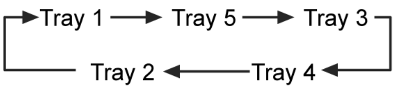
4.1. Special Mode Table

Item		FL Display	Key Operation
Mode Name	**Description**		**Front Key**
Self -Diagnostic Mode	To enter into self diagnostic checking for main unit.		1. Select [►, TAPE] for TAPE mode (Ensure no tape is inserted). 2. Press and hold [■, STOP]button for 3 seconds follow by [►►I, ∧/FF]. To exit, press [⏻/I, POWER] button on main unit or remote control.
CD Test Mode	To enter into checking the reliability of changer unit.		1. Select [►/II, CD] for CD mode. 2. Press and hold [■, STOP] button for 3 seconds follow by [►►I, ∧/FF]. To exit, press [⏻/I, POWER] button on main unit or remote control.
CD Auto Adjustment	To check the CD auto adjustment result for FLOCK, TLOCK and CLVS.	 Self adjustment result CLVS (I: NG, O: OK) TLOCK (I: NG, O: OK) FLOCK (I: NG, O: OK)	In CD Test Mode: 1. Press [0] button on the remote control. To exit, press [⏻/I, POWER] button on main unit or remote control.
CD Changer Reliability Test (CRS1)	To determine the reliability of CD Changer Unit. (For more information, refer to section 4.1.1)	 The counter will increment by one. When reach 99999 will change to 00000.	In Self-Diagnostic Mode: 1. Select [►/II, CD] for CD mode. 2. Press [I◄◄, REW/∨] button. To exit, press [⏻/I, POWER] button on main unit or remote control. (The tray will return to PLAY position and then power off)
Doctor Mode	To enter into Doctor Mode for checking of various items and displaying EEPROM and firmware version.	1.  2.  1. All segments will light up for 1 second. 2. The Check Sum of EEPROM and firmware version will be display. * ROM correction ** Firmware version No:	In any mode: 1. Press [■, STOP] button on main unit follow by [4] and [7] on remote control. To exit, press [ENTER] button on remote control or [⏻/I, POWER] button on main unit or remote control.
Cold Start	To activate cold start upon next AC power up.		In doctor mode: 1. Press [4] button on remote control. To exit, press [ENTER] button on remote control or [⏻/I, POWER] button on main unit or remote control.
Changer Reliability Test	To check the function operation of changer unit. (For more information, refer to 4.1.1)		In doctor mode: 1. Press [DISC] on remote control. To exit, press [ENTER] button on remote control or [⏻/I, POWER] button on main unit or remote control.
FL Display Test	To check the FL segments display (All segments will light up and LED will blink at 0.5 second interval)		In doctor mode: 1. Press [PROGRAM] button on remote control.

Item		FL Display	Key Operation
Mode Name	**Description**		**Front Key**
Tape Eject Test	To check on the tape eject function (For deck 1/2)		In doctor mode: 1. Press [PROGRAM] button on remote control.

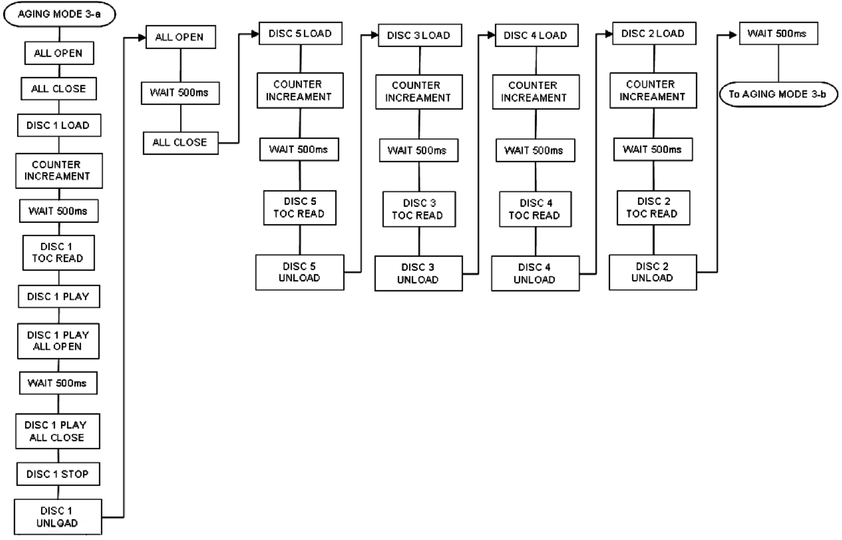
4.1.1. CD changer unit ageing test mode

Below is the process flow chart of ageing for the CD changer unit.


Tray 1
Tray 5
Tray 3
Tray 4
Tray 2

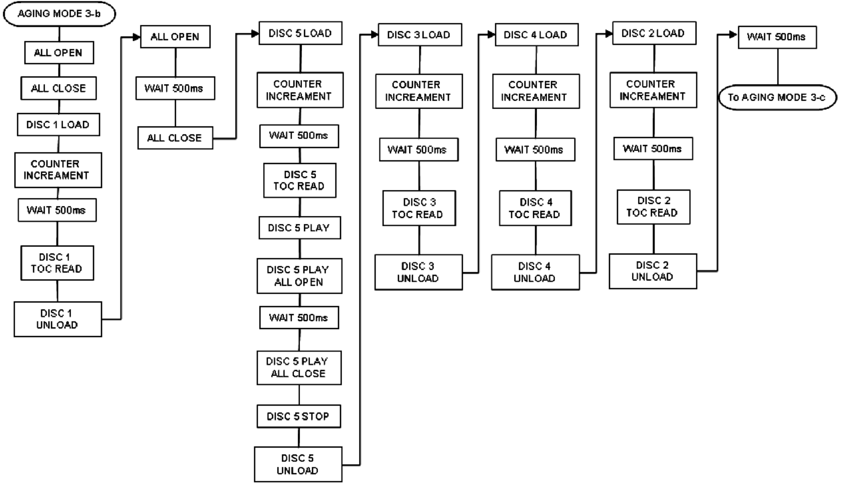
Mode 3 PLAY-CHANGE-OPEN mode aging (1 cycle)

CHANGE while PLAY 1


AGING MODE 3-a
ALL OPEN
ALL CLOSE
DISC 1 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 1 TOC READ
DISC 1 PLAY
DISC 1 PLAY ALL OPEN
WAIT 500ms
DISC 1 PLAY ALL CLOSE
DISC 1 STOP
DISC 1 UNLOAD
ALL OPEN
WAIT 500ms
ALL CLOSE
DISC 5 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 5 TOC READ
DISC 5 UNLOAD
DISC 3 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 3 TOC READ
DISC 3 UNLOAD
DISC 4 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 4 TOC READ
DISC 4 UNLOAD
DISC 2 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 2 TOC READ
DISC 2 UNLOAD
WAIT 500ms
To AGING MODE 3-b

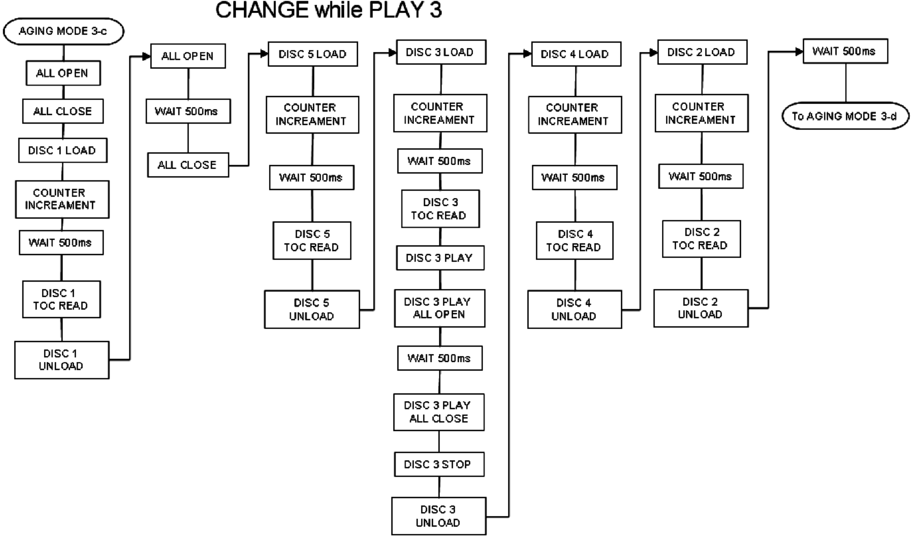
Mode 3 PLAY-CHANGE-OPEN mode aging (1 cycle)

CHANGE while PLAY 5


AGING MODE 3-b
ALL OPEN
ALL CLOSE
DISC 1 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 1 TOC READ
DISC 1 UNLOAD
ALL OPEN
WAIT 500ms
ALL CLOSE
DISC 5 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 5 TOC READ
DISC 5 PLAY
DISC 5 PLAY ALL OPEN
WAIT 500ms
DISC 5 PLAY ALL CLOSE
DISC 5 STOP
DISC 5 UNLOAD
DISC 3 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 3 TOC READ
DISC 3 UNLOAD
DISC 4 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 4 TOC READ
DISC 4 UNLOAD
DISC 2 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 2 TOC READ
DISC 2 UNLOAD
WAIT 500ms
To AGING MODE 3-c

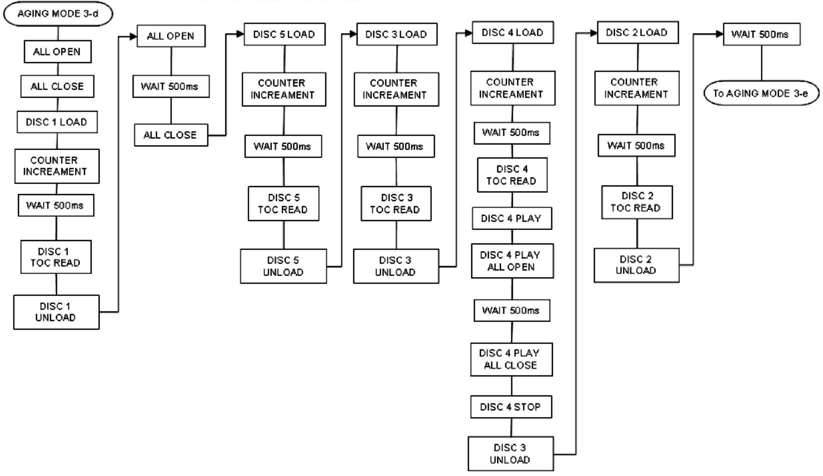
Mode 3 PLAY-CHANGE-OPEN mode aging (1 cycle)

CHANGE while PLAY 3


AGING MODE 3-c
ALL OPEN
ALL CLOSE
DISC 1 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 1 TOC READ
DISC 1 UNLOAD
ALL OPEN
WAIT 500ms
ALL CLOSE
DISC 5 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 5 TOC READ
DISC 5 UNLOAD
DISC 3 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 3 TOC READ
DISC 3 PLAY
DISC 3 PLAY ALL OPEN
WAIT 500ms
DISC 3 PLAY ALL CLOSE
DISC 3 STOP
DISC 3 UNLOAD
DISC 4 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 4 TOC READ
DISC 4 UNLOAD
DISC 2 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 2 TOC READ
DISC 2 UNLOAD
WAIT 500ms
To AGING MODE 3-d

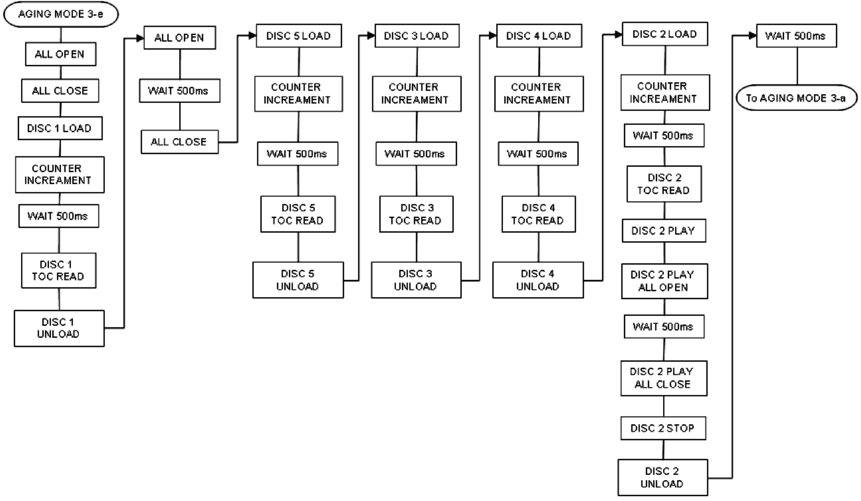
Mode 3 PLAY-CHANGE-OPEN mode aging (1 cycle)

CHANGE while PLAY 4


AGING MODE 3-d
ALL OPEN
ALL CLOSE
DISC 1 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 1 TOC READ
DISC 1 UNLOAD
ALL OPEN
WAIT 500ms
ALL CLOSE
DISC 5 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 5 TOC READ
DISC 5 UNLOAD
DISC 3 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 3 TOC READ
DISC 3 UNLOAD
DISC 4 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 4 TOC READ
DISC 4 PLAY
DISC 4 PLAY ALL OPEN
WAIT 500ms
DISC 4 PLAY ALL CLOSE
DISC 4 STOP
DISC 3 UNLOAD
DISC 2 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 2 TOC READ
DISC 2 UNLOAD
WAIT 500ms
To AGING MODE 3-e

Mode 3 PLAY-CHANGE-OPEN mode aging (1 cycle)

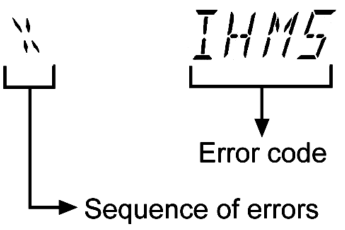
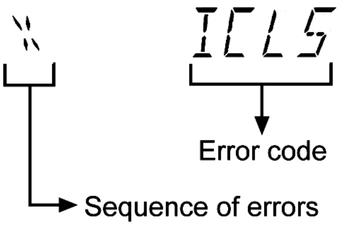
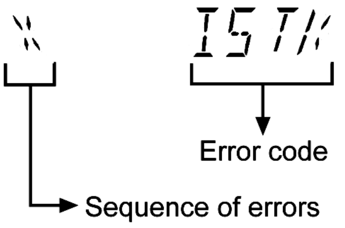
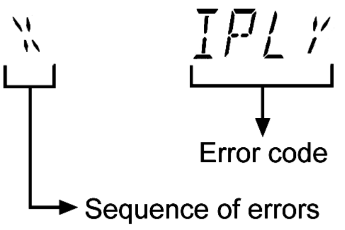
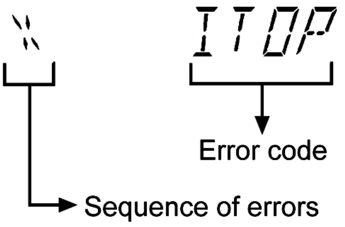
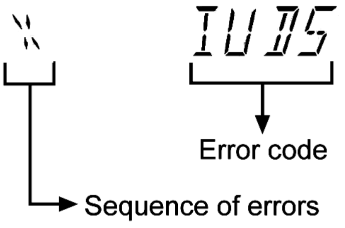
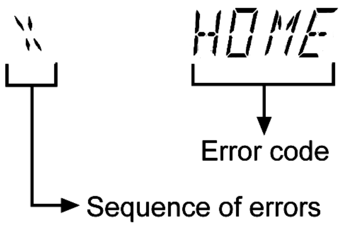
CHANGE while PLAY 2

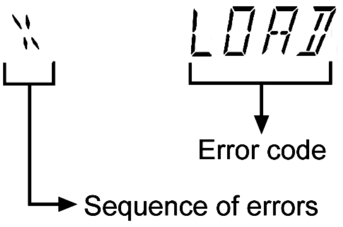
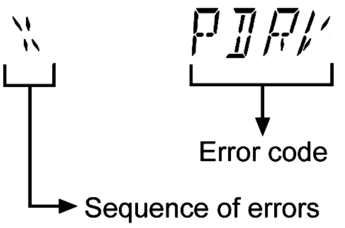
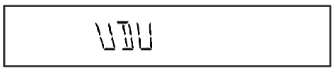
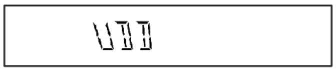
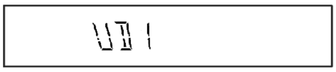
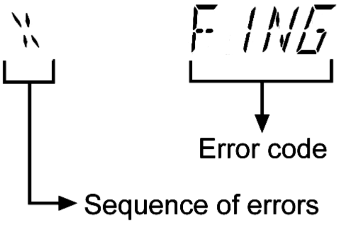
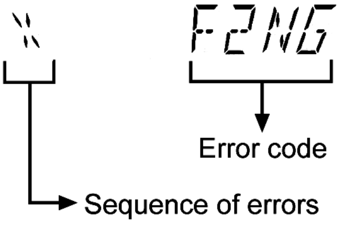
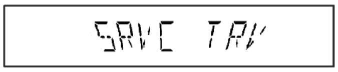
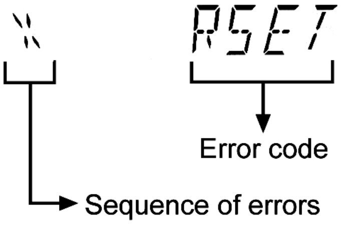

AGING MODE 3-e
ALL OPEN
ALL CLOSE
DISC 1 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 1 TOC READ
DISC 1 UNLOAD
ALL OPEN
WAIT 500ms
ALL CLOSE
DISC 5 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 5 TOC READ
DISC 5 UNLOAD
DISC 3 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 3 TOC READ
DISC 3 UNLOAD
DISC 4 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 4 TOC READ
DISC 4 UNLOAD
DISC 2 LOAD
COUNTER INCREAMENT
WAIT 500ms
DISC 2 TOC READ
DISC 2 PLAY
DISC 2 PLAY ALL OPEN
WAIT 500ms
DISC 2 PLAY ALL CLOSE
DISC 2 STOP
DISC 2 UNLOAD
WAIT 500ms
To AGING MODE 3-a

4.2. Error code Table

Self-Diagnosis Function (refer Section 4.1) provides information on any problems occuring for the unit and its respective components by displaying the error codes. These error code such as U**, H** and F** are stored in memory and held unless it is cleared.

The error code is automatically display after entering into self-diagnostic mode.

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
IHMS	Cam gear abnormality	Cam gear does not rotate to "HOME" position.	 IHMS Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
ICSL	Cam gear/gear units abnormal	Cam gear does not rotate to "PLAY" driving position and hence does not drive playing tray to "STOCK" position.	 ICLS Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
ISTK	Drive rack/gear assembly abnormal	The tray drive rack does not move to "STOCK" position. (Tray does not move to "STOCK" position)	 ISTK Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
IPLY	Drive rack/gear assembly abnormal	The tray drive rack does not move to "PLAY" position. (Tray does not move to "PLAY" position)	 IPLY Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
ITOP	UD assembly	UD Rack does not move to front direction. This lead to UD base not raise to top position.	 ITOP Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
IUDS	UD assembly	After TOP SW is detected, UD rack does not move into tray 1 position.	 IUDS Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
HOME	Cam gear/gear assembly abnormal	Cam gear does not move to "HOME" position under following conditions 1. After tray is load to "PLAY" position. 2. After tray is unload to "STOCK" position.	 HOME Error code Sequence of errors	For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
LOAD	Tray drive assembly abnormal	Tray unit does not move from “STOCK” to “PLAY” position		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
PDRV	Cam gear/gear assembly abnormal	Cam gear does not move from “HOME” to “PLAY” drive position.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
UDU	UD base asssembly abnormal	UD Base assembly does not move upwards from tray 5 to tray 2		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
UDD	UD base asssembly abnormal	UD Base assembly does not move downwards from tray 1 to tray 5.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
UD1	UD base asssembly abnormal	UD Base assembly does not move to tray 1.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
F1NG	Fail - safe mode. (For open/close tray unit(s))	When the tray open operation is performed, it fails to open. It will automatically close all trays after the time-out by the microprocessor. During this time when it fails, the error code will appear.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
F2NG	Fail - safe mode. (For open/close tray unit(s))	When the tray close operation is performed, it fails to close. It will automatically open all trays after the time-out by the microprocessor. During this time when it fails, the error code will appear.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.
SRVC_TRV	To unlock the traverse unit for service	1. All trays set to “STOCK” position 2. Mechanism set to tray 5 3. Cam gear set to “HOME” position		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit.
RSET	Cam gear jam/close sensor faulty	During tray re-open, the cam gear will rotate in the opposite direction to reset the cam gearposition. When it fails, the error code will appear.		For CD changer unit (CRS1). Press [SINGLE CHANGE] on main unit for next error.

CRS1 Error Code display

1. The errors that occured in CRS1 Mechanism can be recalled and displayed, in the order of the occurence under self-diagnostic (Refer to Section 4.1 for procedures to enter this mode.
    - Only the first 5 errors will be memorized (in backup memory). The subsequence error shall be ignored and not memorize. For system with EEPROM as memory backup,memory space in EEPROM is neccesary.
2. To display all error code memorized

In CRS1 Self-Diagnostic mode, press [SINGLE CHANGE] to display subsequence error code.

It shall repeat after reaching error no. 5.

e.g.:

[1 _ _ _ _ I H M S] → [SINGLE CHANGE]
[2 _ _ _ _ I T O P] → [SINGLE CHANGE]
[3 _ _ _ _ H O M E] → [SINGLE CHANGE]
[4 _ _ _ _ L O A D] → [SINGLE CHANGE]
[5 _ _ _ _ _ U D D] → [SINGLE CHANGE]

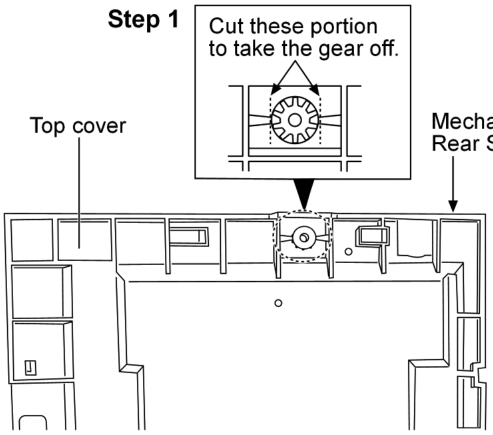
3. To clear the error code memory

   In CRS1 Self-Diagnostic mode, long press [SINGLE CHANGE] key (2s or more)

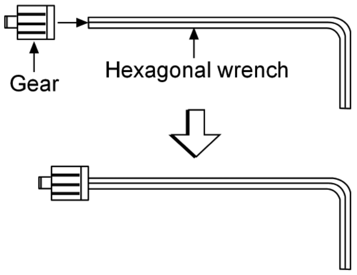
5 Troubleshooting Explorer

5.1. Preparation of service jig

- This unit has a gear which is used for checking items (open/close of disc tray, up/down operation of traverse unit by manually) when servicing. (For gear information, that is described on the items for disassembly procedures.)
- For preparation of gear (for servicing), perform the procedures as follows.
- In case of re-servicing the same set, the "gear for servicing" may be took off because it had been used. So, the "gear for servicing" must be stored.


Step 1
Cut these portion to take the gear off.
Top cover
Mechanism Rear Side

Step 2: Insert the gear into the hexagonal wrench.


Gear
Hexagonal wrench

(Preparation of gear as jig is completed)

5.2. Checking of Changer Unit

Below is the procedures for checking the function of the changer unit.

Step 1: Enter into doctor mode.

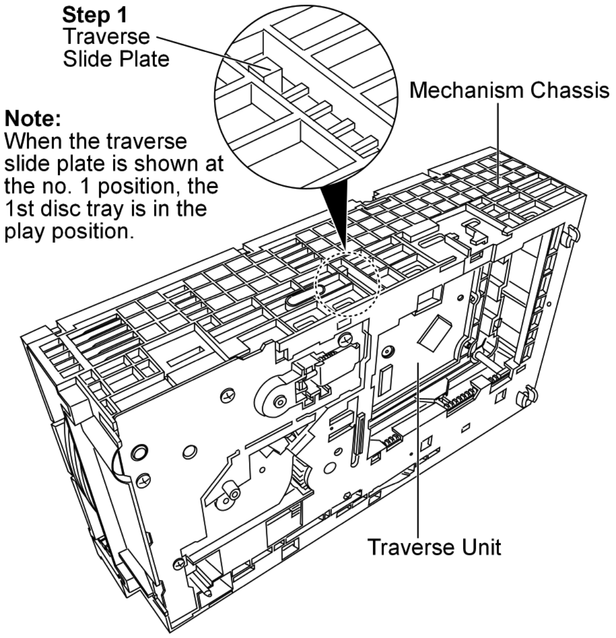
Step 2: Press [DISC] on remote control unit.

Step 3: Error code will appear if there is any function problems. (Pls refer to section 4.2 on more information of error code).

5.3. Setting the trays in "STOCK" position

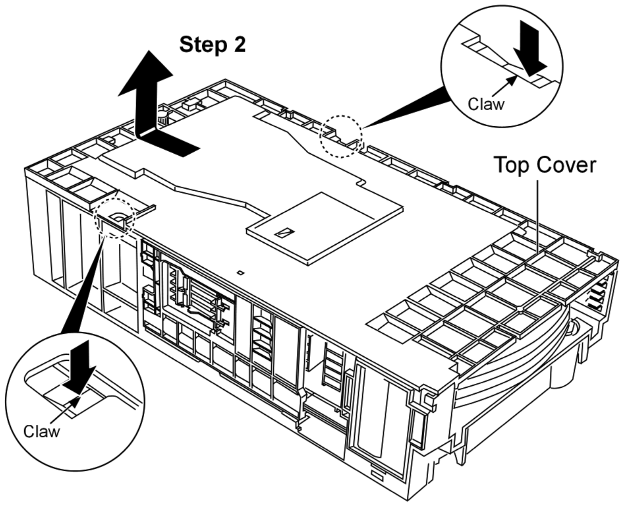
- Below is procedures for setting the main unit into service mode:-
  1. Enter into self-diagnostic (Refer to section 4.1)
  2. Press [SINGLE CHANGE] on main unit.
- If fail to set the main unit into service mode, do it manually by the below procedures

5.3.1. No CD in the tray


Step 1
Traverse Slide Plate
Mechanism Chassis
Traverse Unit

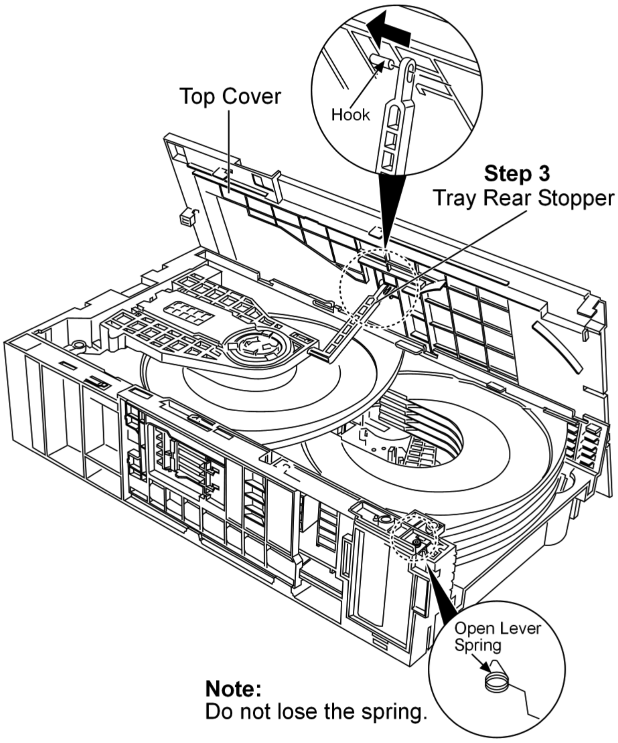
Note:
When the traverse slide plate is shown at the no. 1 position, the 1st disc tray is in the play position.

Step 1: Check any disc tray at the play position from the mechanism side.


Step 2
Claw
Top Cover
Claw

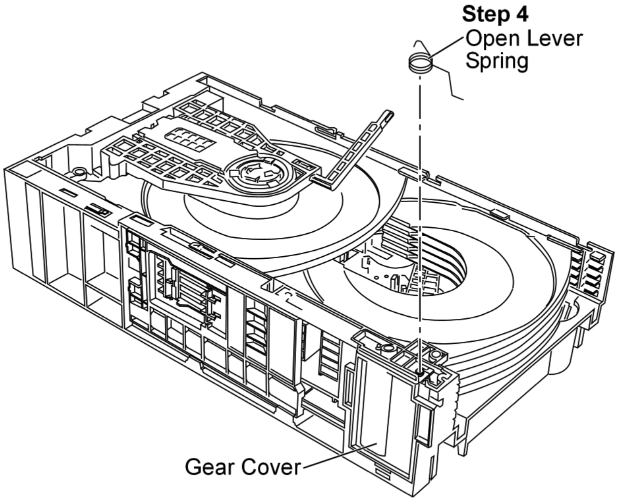
Step 2: Press the 2 claws and then lift up the top cover as arrows shown.

Caution: Do not exert strong force on the claws.

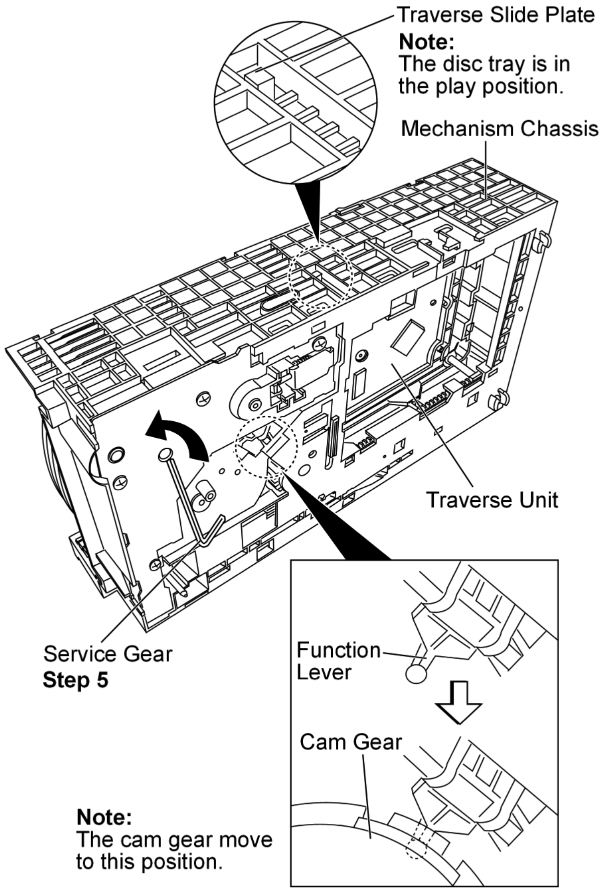

Hook
Top Cover
Step 3
Tray Rear Stopper
Open Lever Spring

Note:
Do not lose the spring.

Step 3: Release the top cover from the tray rear stopper as arrow shown and remove the top cover.


Step 4
Open Lever Spring
Gear Cover

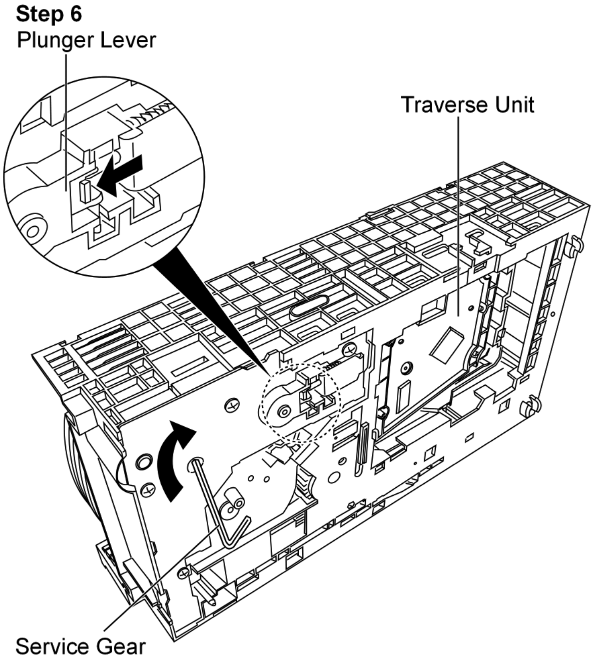
Step 4: Remove the open lever spring.


Traverse Slide Plate
Mechanism Chassis
Traverse Unit
Service Gear
Step 5
Function Lever
Cam Gear

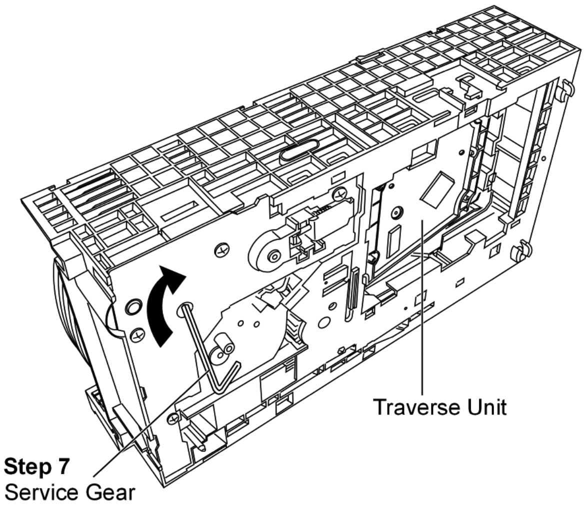
Note:
The disc tray is in the play position.

Note:
The cam gear move to this position.

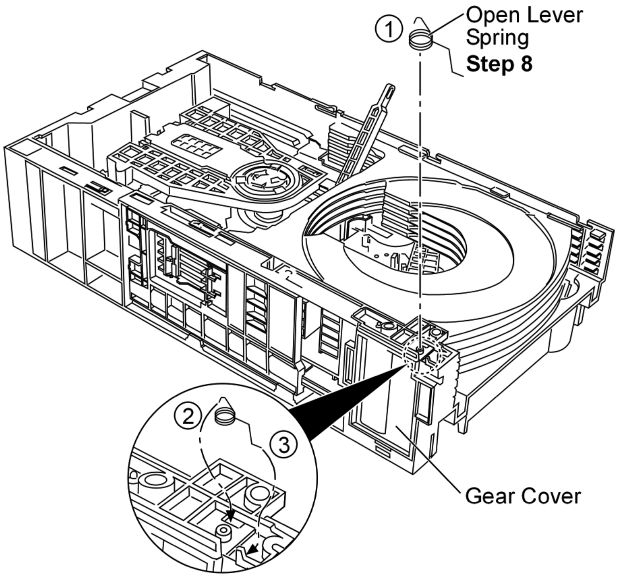
Step 5: Insert the service gear into the service hole and rotate the gear anti-clockwise.


Step 6
Plunger Lever
Traverse Unit
Service Gear

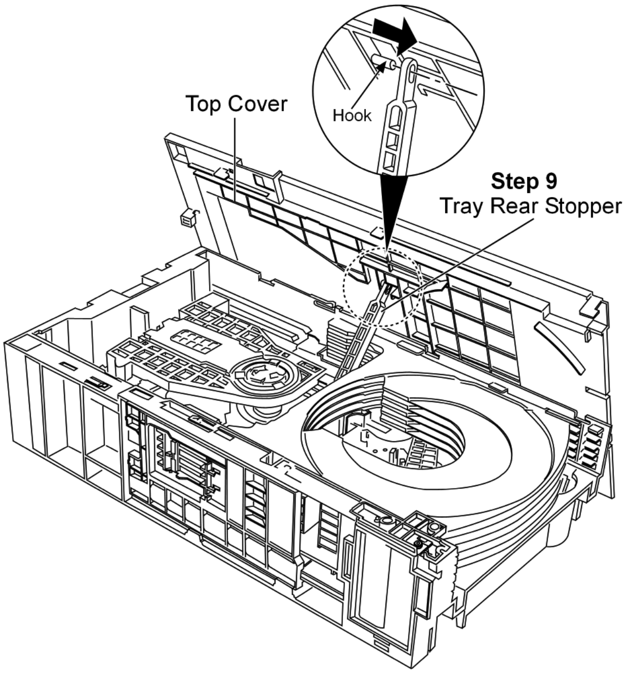
Step 6: Press and hold the plunger lever and rotate the gear clockwise until it stop.


Traverse Unit
Step 7
Service Gear

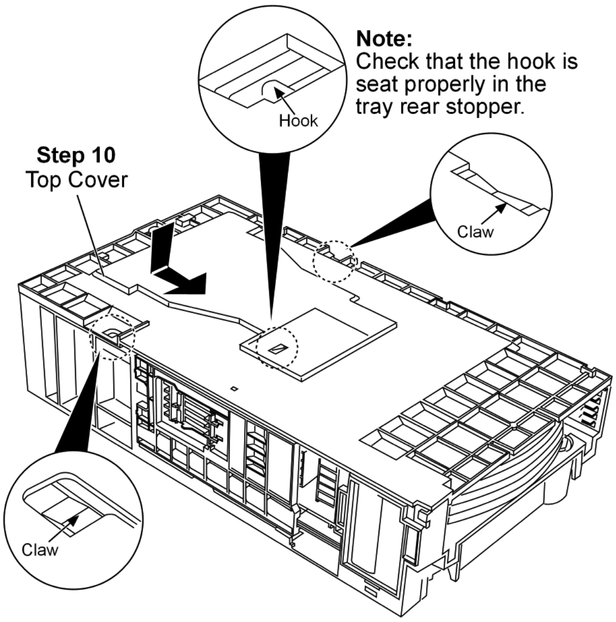
Step 7: Release the plunger lever, rotate the gear clockwise continuously until it stop at “HOME” position.


①
Open Lever Spring
Step 8
②
③
Gear Cover

Step 8: Install the open lever spring as shown.

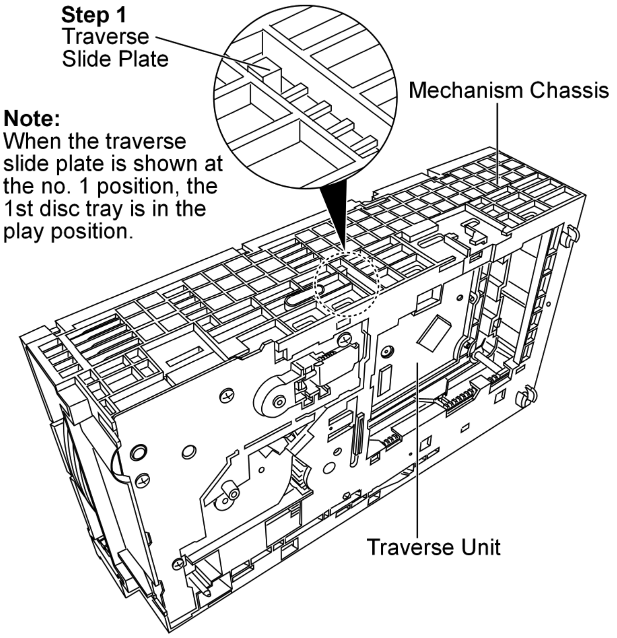

Top Cover
Hook
Step 9
Tray Rear Stopper

Step 9: Install the top cover, fix the top cover hook to the tray rear stopper as arrow shown.


Note:
Check that the hook is seat properly in the tray rear stopper.
Hook
Step 10
Top Cover
Claw
Claw

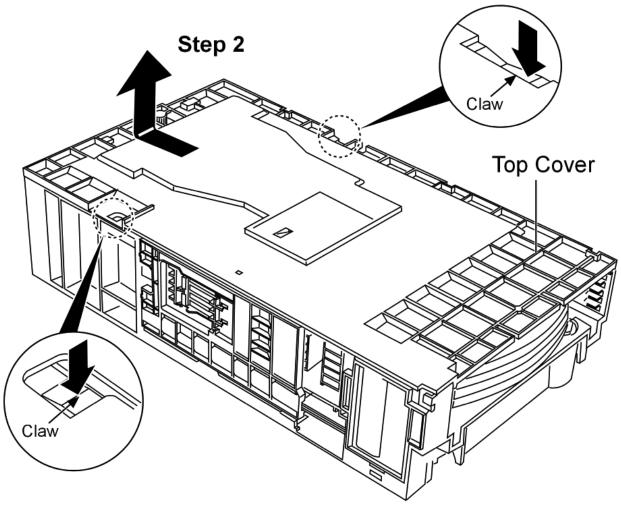
Step 10: Fix the top cover as arrow shown, the 2 claws should be latched.

5.3.2. When CD in the tray


Step 1
Traverse Slide Plate
Mechanism Chassis
Traverse Unit

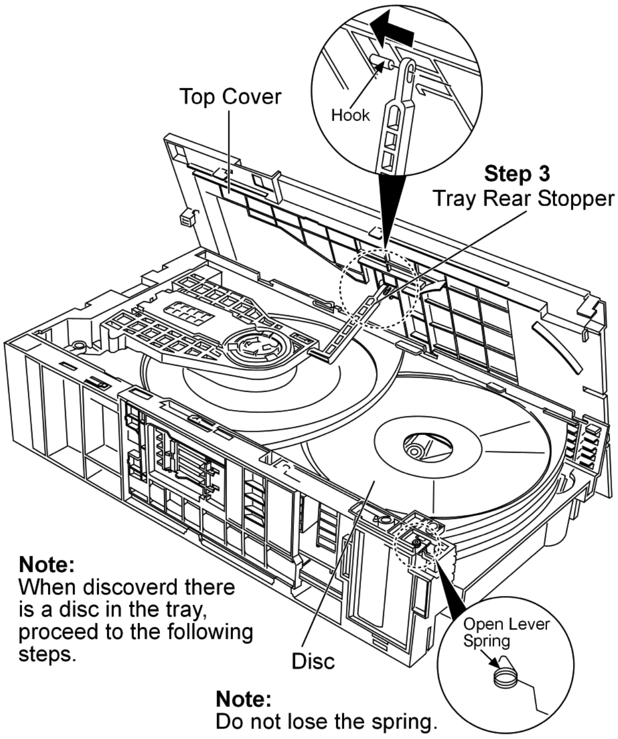
Note:
When the traverse slide plate is shown at the no. 1 position, the 1st disc tray is in the play position.

Step 1: Check any disc tray at the play position from the mechanism side.


Step 2
Claw
Top Cover
Claw

Step 2: Press the 2 claws and then lift up the top cover as arrows shown.

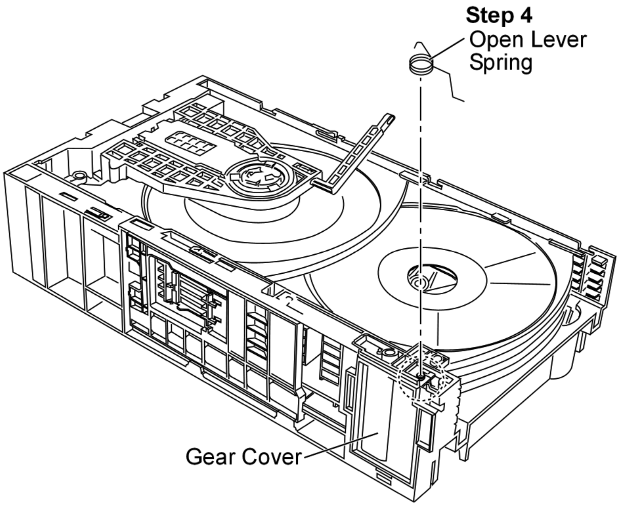
Caution: Do not exert strong force on the claws.


Top Cover
Hook
Step 3
Tray Rear Stopper
Disc
Open Lever Spring

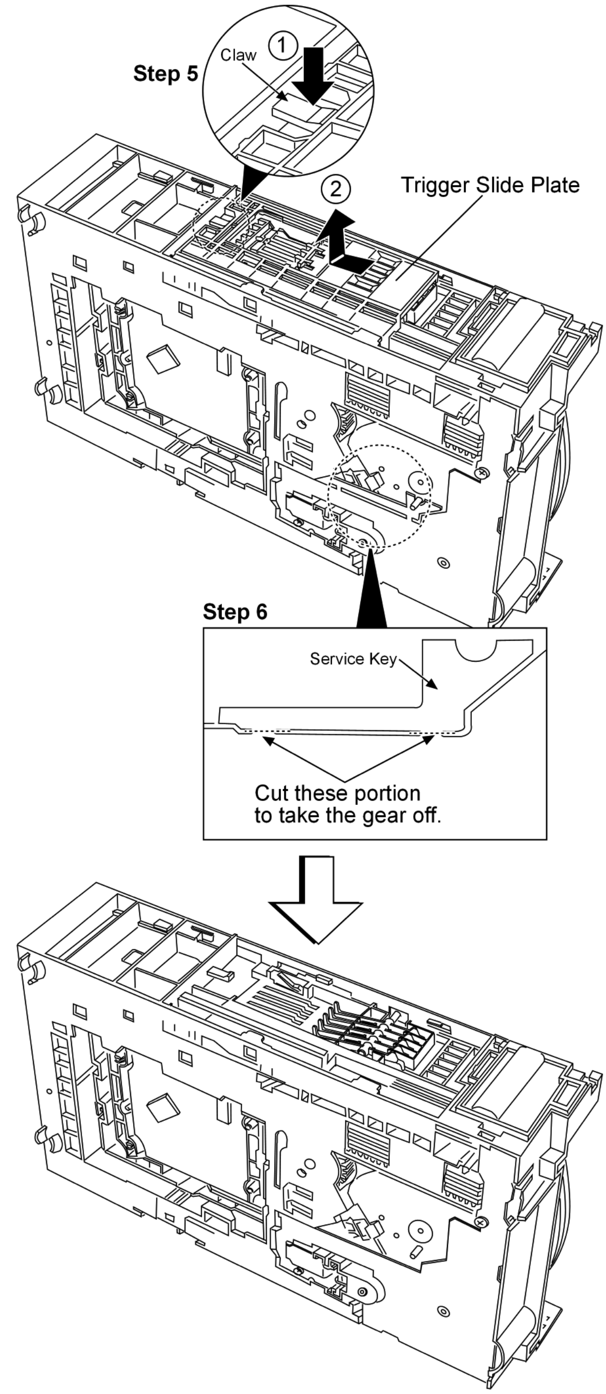
Note:
When discoverd there is a disc in the tray, proceed to the following steps.

Note:
Do not lose the spring.

Step 3: Release the top cover from the tray rear stopper as arrow shown and remove the top cover.

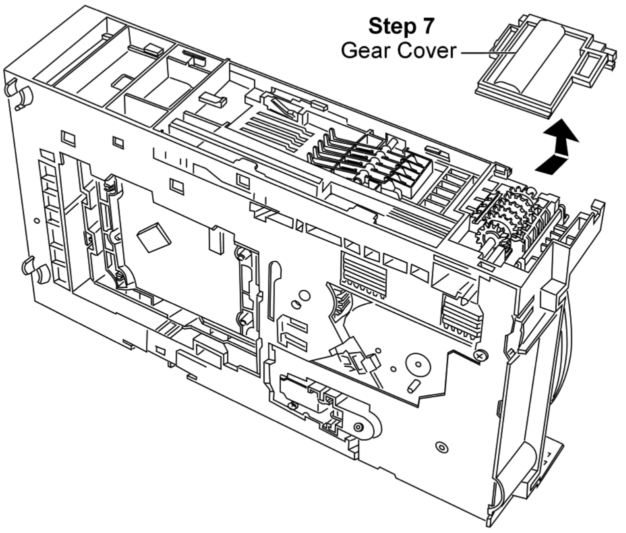

Step 4
Open Lever Spring
Gear Cover

Step 4: Remove the open lever spring.

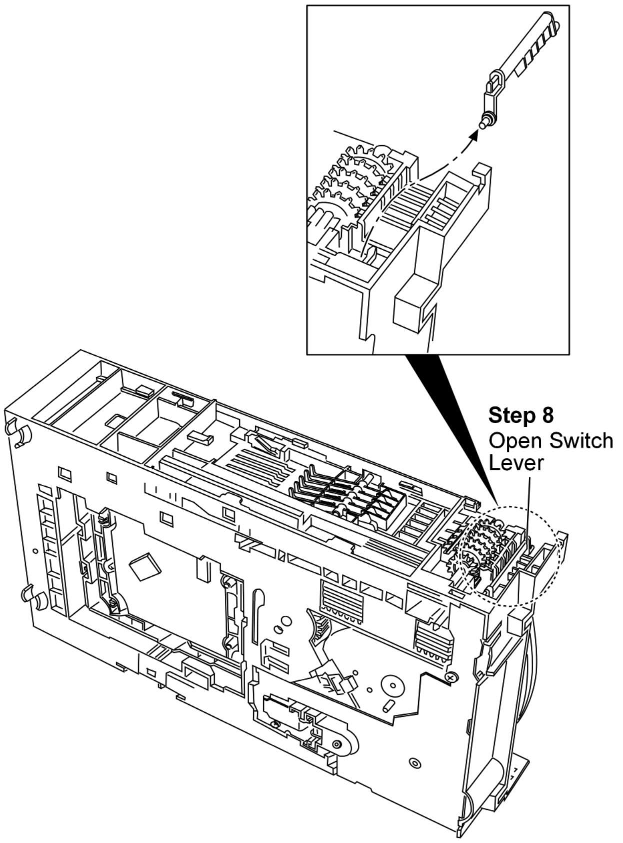

Step 5
Claw
①
②
Trigger Slide Plate
Step 6
Service Key
Cut these portion
to take the gear off.

Step 5: Press the claw, push backwards and remove the trigger slide plate as arrows shown.

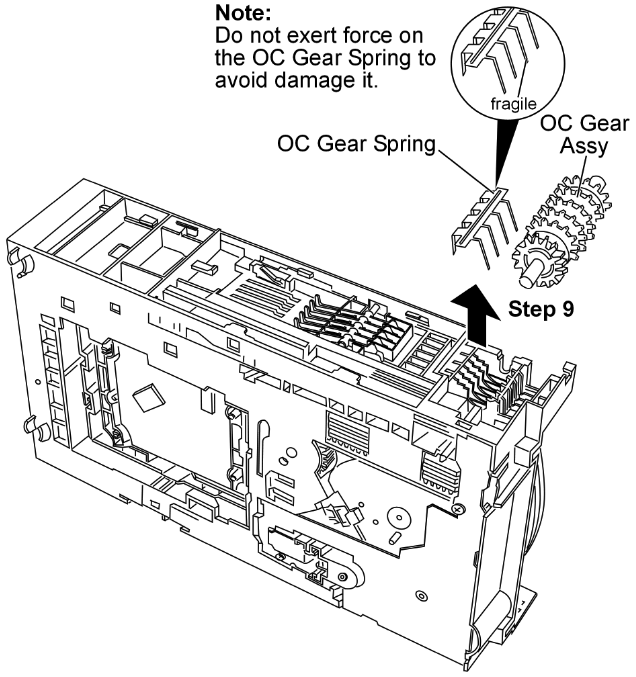
Step 6: Prepare the service key for use.


Step 7
Gear Cover

Step 7: Push forward and remove the gear cover as arrow shown.

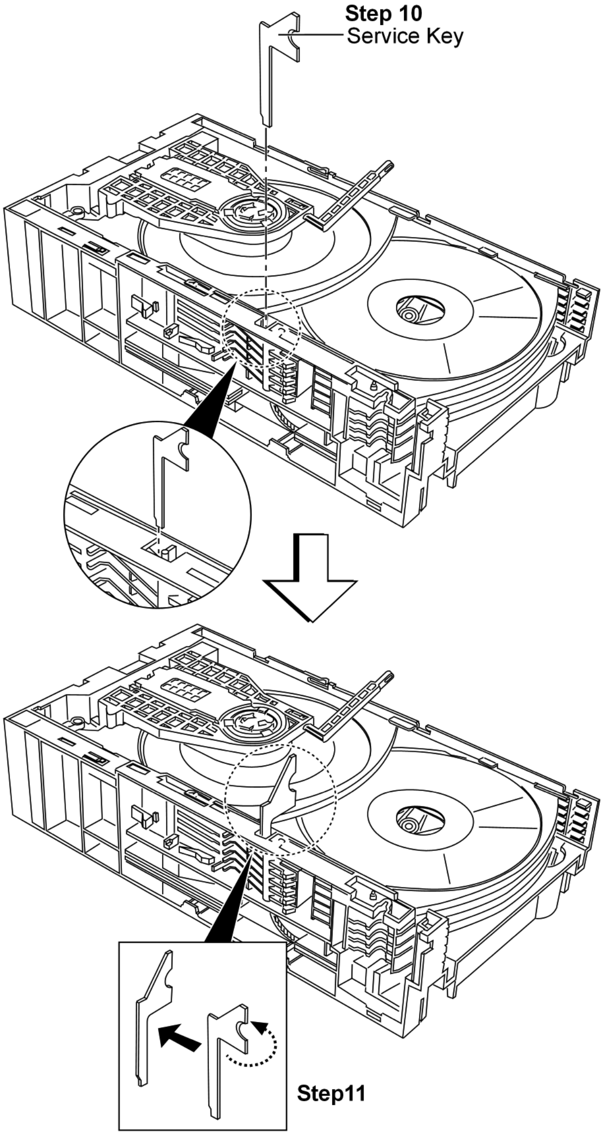

Step 8
Open Switch
Lever

Step 8: Remove the open switch lever.


Note:
Do not exert force on the OC Gear Spring to avoid damage it.
fragile
OC Gear Spring
OC Gear Assy
Step 9

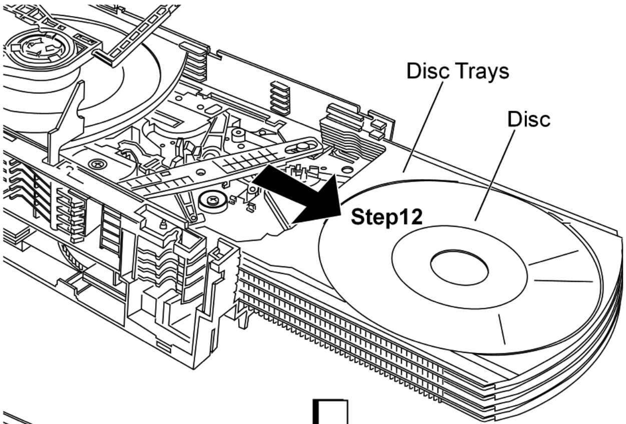
Step 9: Remove the OC gear assy followed by the OC gear spring as arrow shown.

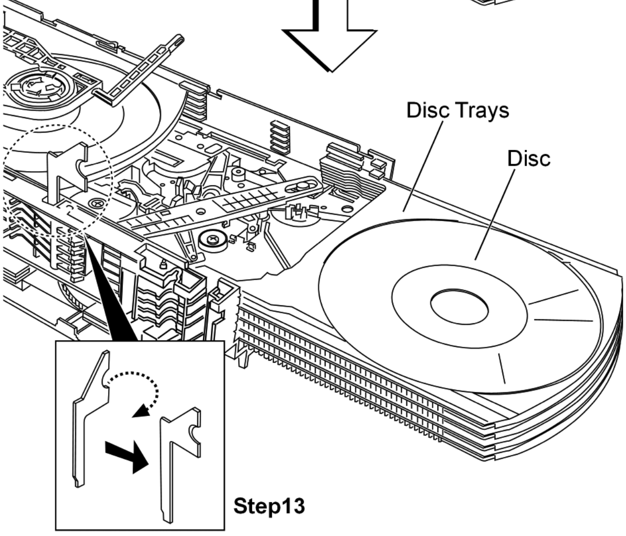
Caution: Ensure the OC gear assy and OC gear spring are handle properly and keep them in a safe place.


Step 10
Service Key
Step11

Step 10: Insert the service key into the hole.

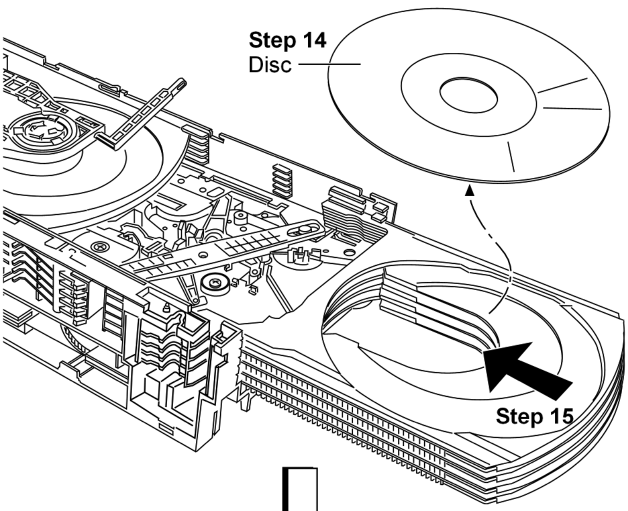
Step 11: Turn the service key to release the tray lock lever.

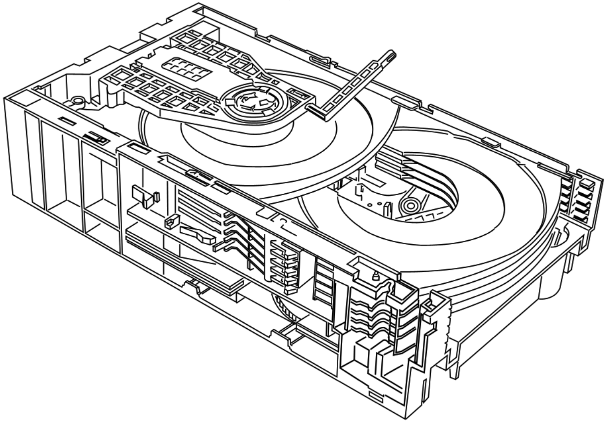

Disc Trays
Disc
Step12


Disc Trays
Disc
Step13

Step 12: Push the disc trays towards the front as arrow shown.

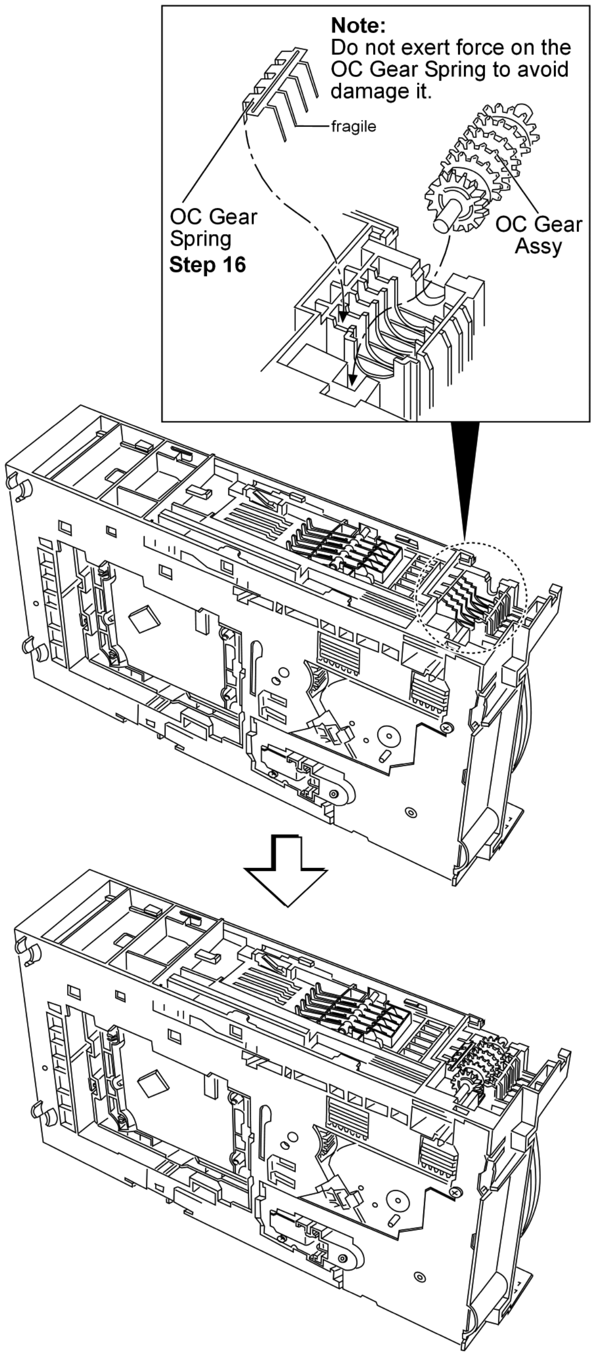
Step 13: Turn the service key back to its original position and remove it.


Step 14
Disc
Step 15

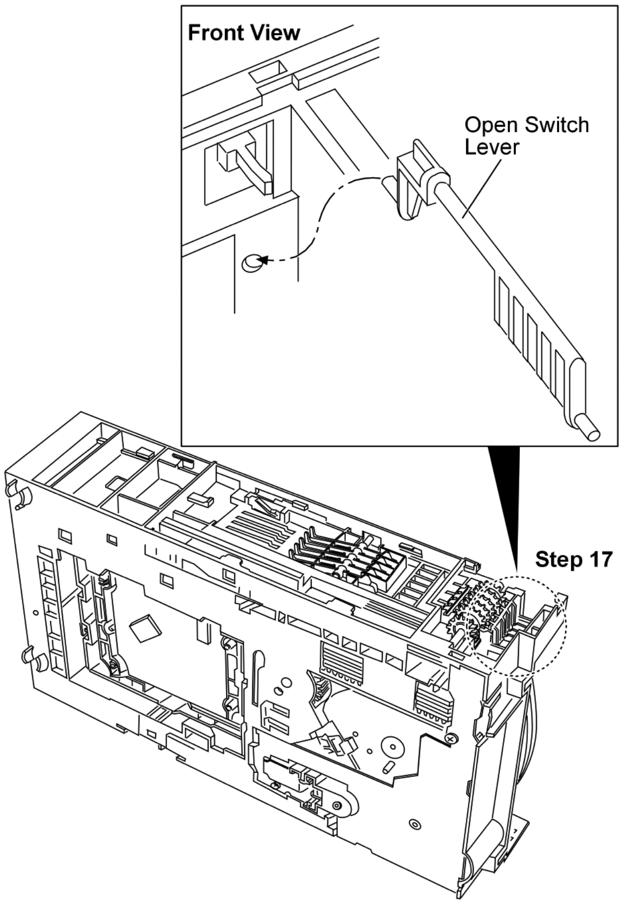


Step 14: Remove the disc.

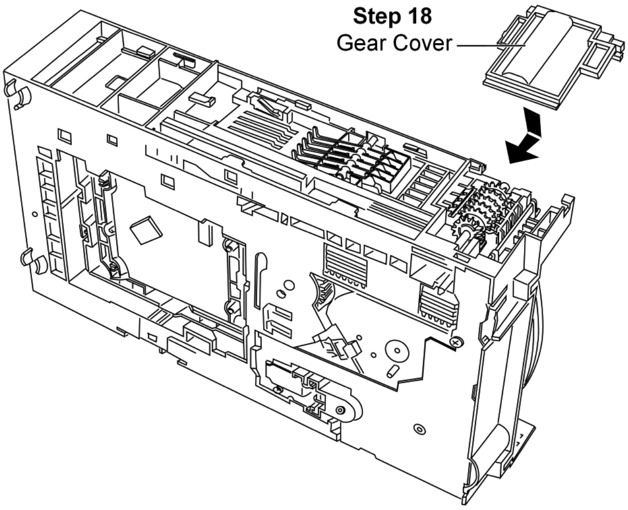
Step 15: Push the disc trays back to the unit as arrow shown.


Note:
Do not exert force on the OC Gear Spring to avoid damage it.
fragile
OC Gear Spring
Step 16
OC Gear Assy

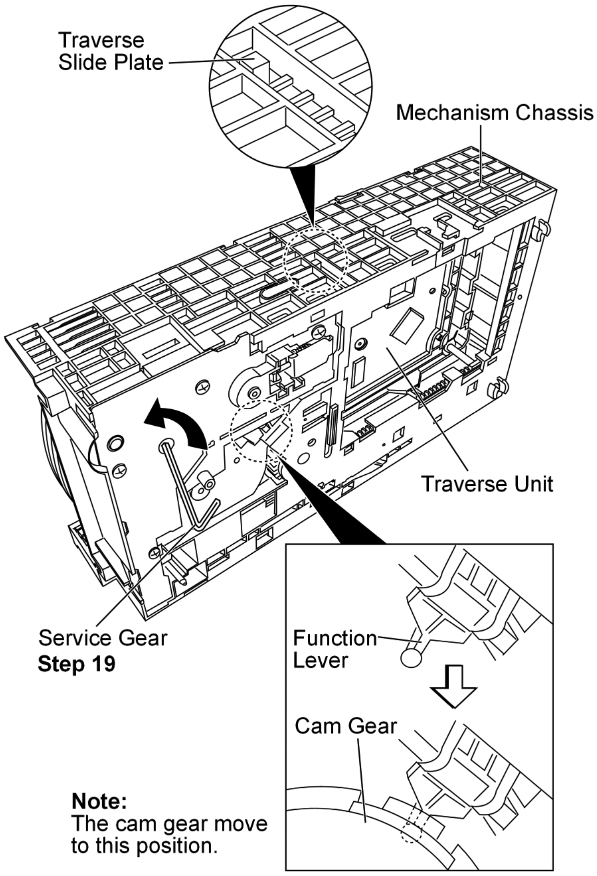
Step 16: Install the OC gear assy followed by the OC gear spring.


Front View
Open Switch Lever
Step 17

Step 17: Install the open switch lever.

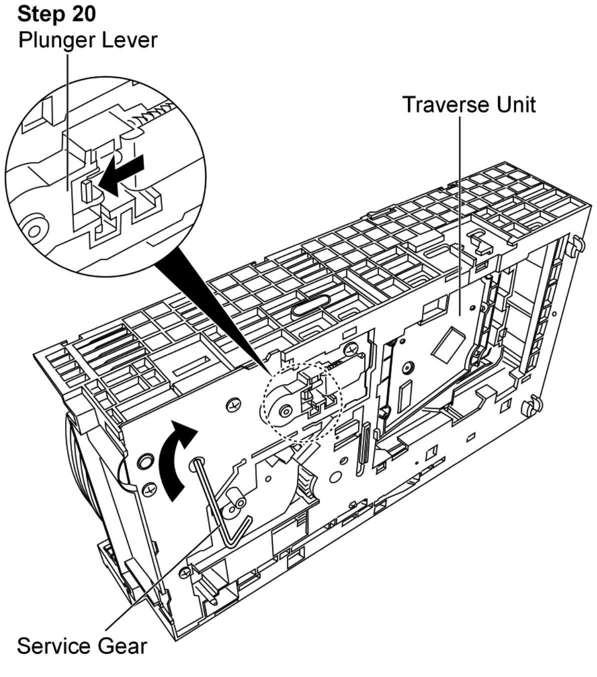

Step 18
Gear Cover

Step 18: Install the gear cover as arrow shown.

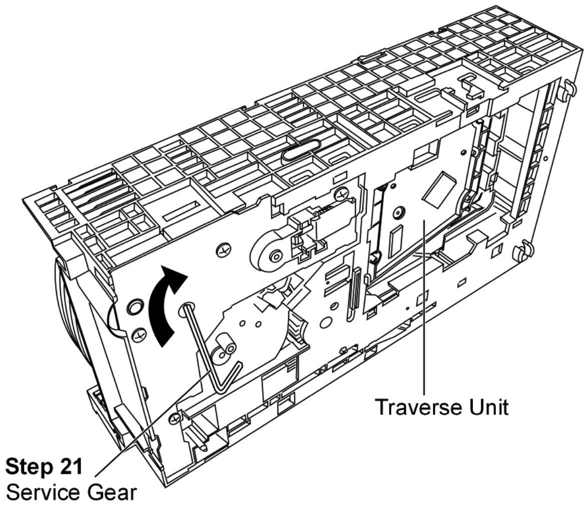

Traverse Slide Plate
Mechanism Chassis
Traverse Unit
Service Gear
Step 19
Function Lever
Cam Gear

Note:
The cam gear move to this position.

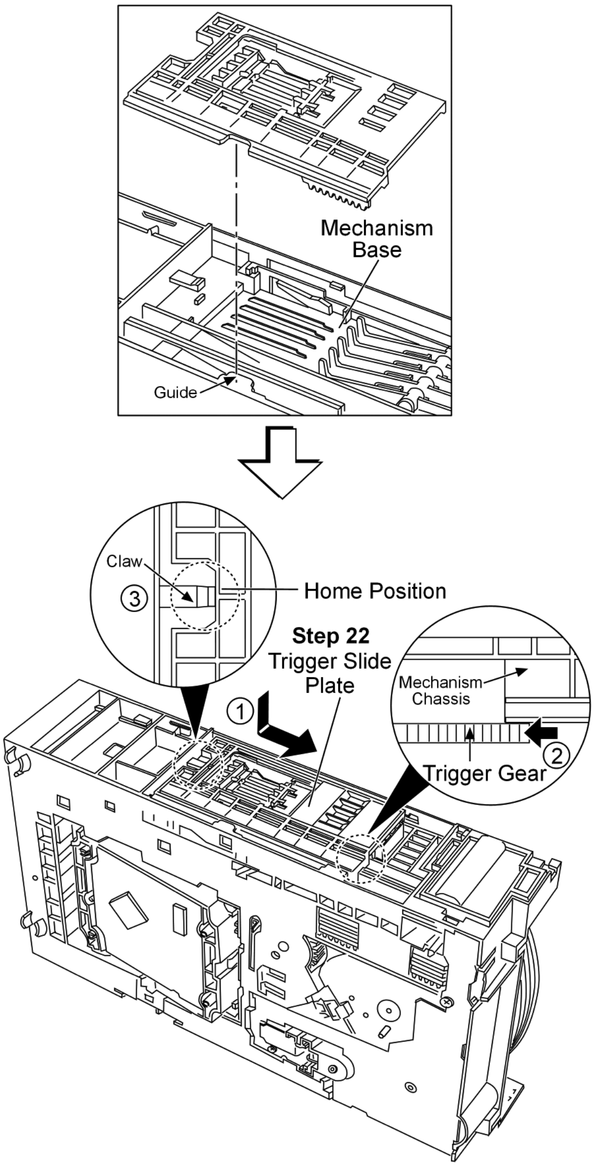
Step 19: Insert the service gear into the service hole and rotate the gear anti-clockwise.


Step 20
Plunger Lever
Traverse Unit
Service Gear

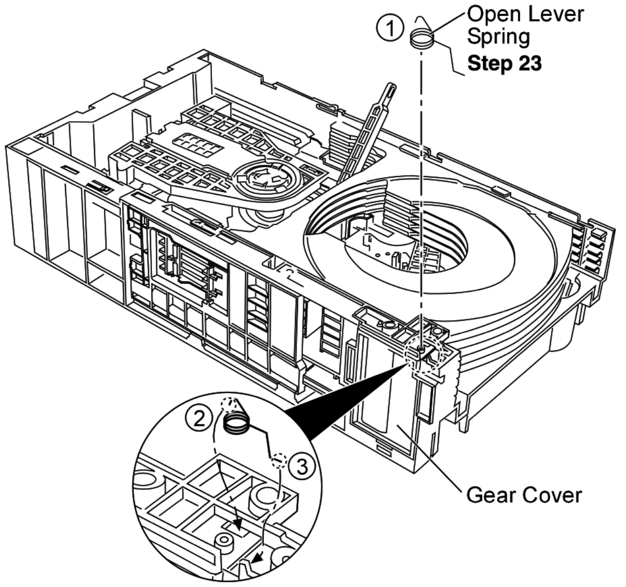
Step 20: Press and hold the plunger lever and rotate the gear clockwise until it stop.


Traverse Unit
Step 21
Service Gear

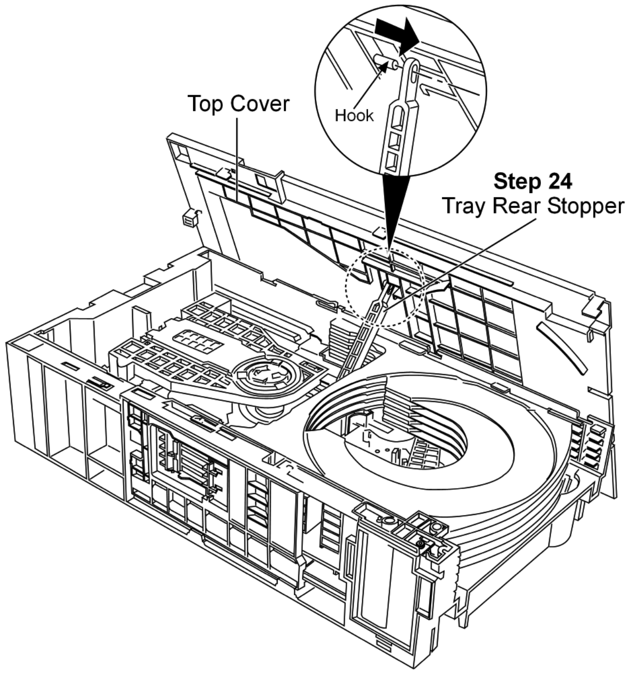
Step 21: Release the plunger lever, rotate the gear clockwise continuously until it stop at “HOME” position.


Mechanism Base
Guide
Claw
③
Home Position
Step 22
Trigger Slide Plate
①
Mechanism Chassis
②
Trigger Gear

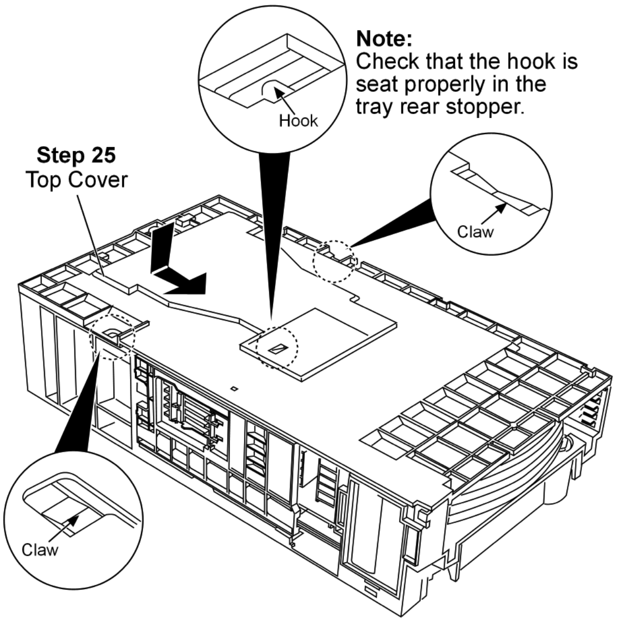
Step 22: Install the trigger slide plate as arrows shown in sequence.


①
Open Lever
Spring
Step 23
②
③
Gear Cover

Step 23: Install the open lever spring as shown.


Top Cover
Hook
Step 24
Tray Rear Stopper

Step 24: Install the top cover, fix the top cover hook to the tray rear stopper as arrow shown.

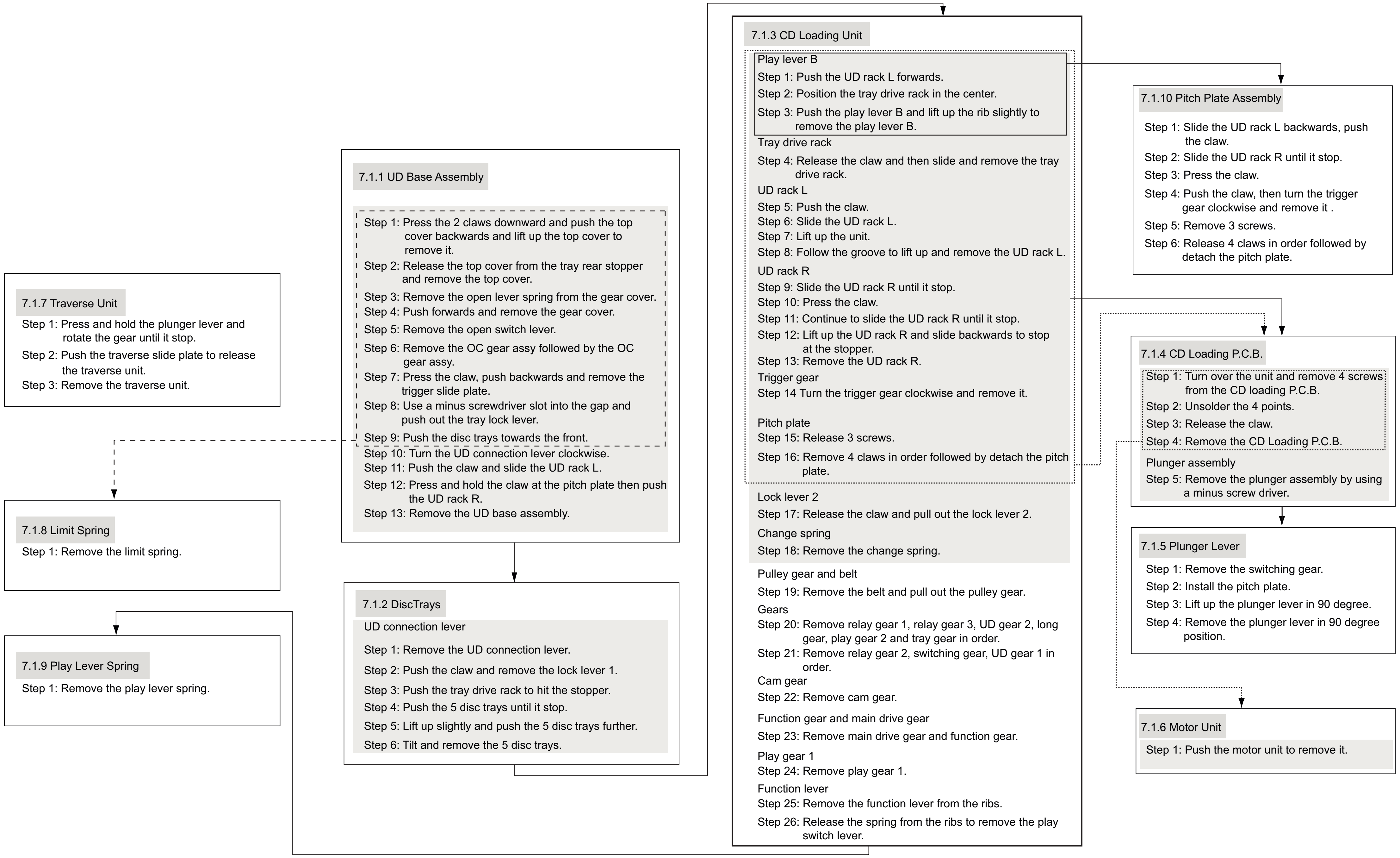

Note:
Check that the hook is seat properly in the tray rear stopper.
Hook
Step 25
Top Cover
Claw
Claw

Step 25: Fix the top cover as arrow shown, the 2 claws should be latched.

6 Flow Chart

6.1. Disassembly Flow Chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.



7.1.1 UD Base Assembly

Step 1: Press the 2 claws downward and push the top cover backwards and lift up the top cover to remove it.
Step 2: Release the top cover from the tray rear stopper and remove the top cover.
Step 3: Remove the open lever spring from the gear cover.
Step 4: Push forwards and remove the gear cover.
Step 5: Remove the open switch lever.
Step 6: Remove the OC gear assy followed by the OC gear assy.
Step 7: Press the claw, push backwards and remove the trigger slide plate.
Step 8: Use a minus screwdriver slot into the gap and push out the tray lock lever.
Step 9: Push the disc trays towards the front.
Step 10: Turn the UD connection lever clockwise.
Step 11: Push the claw and slide the UD rack L.
Step 12: Press and hold the claw at the pitch plate then push the UD rack R.
Step 13: Remove the UD base assembly.

7.1.2 DiscTrays

UD connection lever
Step 1: Remove the UD connection lever.
Step 2: Push the claw and remove the lock lever 1.
Step 3: Push the tray drive rack to hit the stopper.
Step 4: Push the 5 disc trays until it stop.
Step 5: Lift up slightly and push the 5 disc trays further.
Step 6: Tilt and remove the 5 disc trays.

7.1.3 CD Loading Unit

Play lever B
Step 1: Push the UD rack L forwards.
Step 2: Position the tray drive rack in the center.
Step 3: Push the play lever B and lift up the rib slightly to remove the play lever B.

Tray drive rack
Step 4: Release the claw and then slide and remove the tray drive rack.

UD rack L
Step 5: Push the claw.
Step 6: Slide the UD rack L.
Step 7: Lift up the unit.
Step 8: Follow the groove to lift up and remove the UD rack L.

UD rack R
Step 9: Slide the UD rack R until it stop.
Step 10: Press the claw.
Step 11: Continue to slide the UD rack R until it stop.
Step 12: Lift up the UD rack R and slide backwards to stop at the stopper.
Step 13: Remove the UD rack R.

Trigger gear
Step 14 Turn the trigger gear clockwise and remove it.

Pitch plate
Step 15: Release 3 screws.
Step 16: Remove 4 claws in order followed by detach the pitch plate.

Lock lever 2
Step 17: Release the claw and pull out the lock lever 2.

Change spring
Step 18: Remove the change spring.

Pulley gear and belt
Step 19: Remove the belt and pull out the pulley gear.

Gears
Step 20: Remove relay gear 1, relay gear 3, UD gear 2, long gear, play gear 2 and tray gear in order.
Step 21: Remove relay gear 2, switching gear, UD gear 1 in order.

Cam gear
Step 22: Remove cam gear.

Function gear and main drive gear
Step 23: Remove main drive gear and function gear.

Play gear 1
Step 24: Remove play gear 1.

Function lever
Step 25: Remove the function lever from the ribs.
Step 26: Release the spring from the ribs to remove the play switch lever.

7.1.4 CD Loading P.C.B.

Step 1: Turn over the unit and remove 4 screws from the CD loading P.C.B.
Step 2: Unsolder the 4 points.
Step 3: Release the claw.
Step 4: Remove the CD Loading P.C.B.

Plunger assembly
Step 5: Remove the plunger assembly by using a minus screw driver.

7.1.5 Plunger Lever

Step 1: Remove the switching gear.
Step 2: Install the pitch plate.
Step 3: Lift up the plunger lever in 90 degree.
Step 4: Remove the plunger lever in 90 degree position.

7.1.6 Motor Unit

Step 1: Push the motor unit to remove it.

7.1.7 Traverse Unit

Step 1: Press and hold the plunger lever and rotate the gear until it stop.
Step 2: Push the traverse slide plate to release the traverse unit.
Step 3: Remove the traverse unit.

7.1.8 Limit Spring

Step 1: Remove the limit spring.

7.1.9 Play Lever Spring

Step 1: Remove the play lever spring.

7.1.10 Pitch Plate Assembly

Step 1: Slide the UD rack L backwards, push the claw.
Step 2: Slide the UD rack R until it stop.
Step 3: Press the claw.
Step 4: Push the claw, then turn the trigger gear clockwise and remove it .
Step 5: Remove 3 screws.
Step 6: Release 4 claws in order followed by detach the pitch plate.

6.2. Assembly Flow Chart

The following chart is the procedure for assembling the casing and inside parts for internal inspection when carrying out the servicing.

7.2.1 CD Loading Unit

Plunger lever

Step 1: Turn over the unit and install the plunger lever in 90 degree position.
Step 2: Push in the plunger lever.
Step 3: Turn over the unit and install the motor unit properly.

Plunger assembly

Step 4: Install the plunger assembly.

CD loading P.C.B.

Step 5: Install the CD Loading P.C.B.
Step 6: The claws should be latched.
Step 7: Solder the 4 points.
Step 8: Fix it with 4 screws.

Play switch lever

Step 9: Install the play switch lever.
Step 10: Fix the spring below the rib.

Function lever

Step 11: Install the the function lever.

Play gear 1

Step 12: Install the play gear 1.

Function gear and main drive gear

Step 13: Install the main drive gear.
Step 14: Install the function gear.

Gears

Step 15: Install the relay gear 2, switching gear and UD gear 1 respectively.
Step 16: Install the cam gear.Make sure the big hole is fix at the position (A) at 90 degree.
Step 17: Turn the cam gear anti-clockwise until the big hole stop at position (B).
Step 18: Install the relay gear 1, relay gear 3, UD gear 2, long gear and play gear 2 respectively.
Step 19: Install the tray relay gear.

Pulley gear and belt

Step 20: Install the pulley gear followed by the belt.

Change spring

Step 21: Install the change spring.

Pitch plate

Step 22: Install the lock lever 2 in sequence.
Step 23: Install the pitch plate.
Step 24: The 4 claws should be latched properly.
Step 25: Fix it with 3 screws.

Trigger gear

Step 26: Install the trigger gear in sequence.
Step 27: Use the screwdriver to turn the hole on the UD gear 2 align with the pitch plate hole.

UD rack R

Step 28: Insert the UD rack R.
Step 29: Push the UD rack R.

UD rack L

Step 30: Insert the UD rack L.
Step 31: Push the claw.
Step 32: Pull the UD rack L.

Tray drive rack

Step 33: Install the tray drive rack.

Play lever B

Step 34: Install the play lever B below the rib.

7.2.2 Disc Trays

Step 1: Tilt and fix the 5 disc trays.
Step 2: Push the 5 disc trays until it stop.
Step 3: Push the tray drive rack until it stop.

Lock lever 1

Step 4: Fix the lock lever 1 onto the pitch plate.
Step 5: Press and hold the claw at the pitch plate then push the UD rack R.
Step 6: Push the claw and slide the UD rack L.

UD connection lever

Step 7: Install the UD connection lever.

↓

7.2.3 UD Base Assembly

Step 1: Push the traverse slide plate.
Step 2: Install the UD base assembly.
Step 3: Turn UD connection lever anti-clockwise, the UD base assembly will move downwards.
Step 4: Install the tray lock lever to the mechanism base and push the tray lock lever with a hand to fix it.
Step 5: Push the disc trays back to the unit.

Trigger Slide Plate

Step 6: Install the trigger slide plate, push forwards and push the trigger until locked by the claw.
Step 7: Install the OC gear spring followed by the OC gear assy.
Step 8: Install the open switch lever.
Step 9: Install the gear cover.
Step 10: Install the open lever spring.
Step 11: Install the top cover, fix the top cover hook to the tray rear stopper.
Step 12: Fixed the top cover, the 2 claws should be latched.

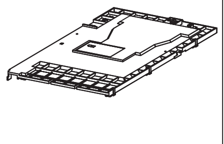
7.2.5 Traverse Unit

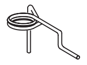
Step 1: Turn over the unit and install traverse unit.
Step 2: Push the traverse slide plate to lock the traverse unit.

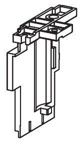
7.2.4 CD Loading P.C.B

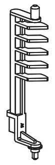
Step 1: Install the plunger assembly.
Step 2: Install the CD Loading P.C.B.
Step 3: The claw should be latched.
Step 4: Fix it with 4 screws.
Step 5: Solder the 4 points.

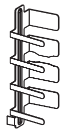
6.3. Disassembly Flow

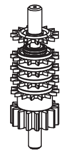

1. Top Cover

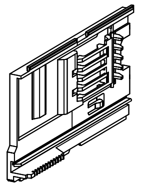

2. Open Lever Spring

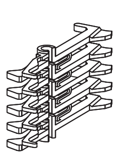

3. Gear Cover

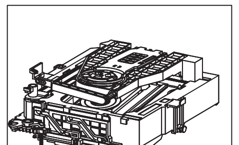

4. Open Switch Lever

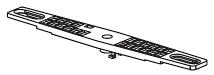

5. OC Gear Spring

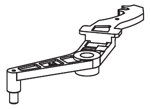

6. OC Gear Assy

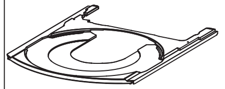

7. Trigger Slide Plate

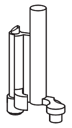

8. Tray Lock Lever

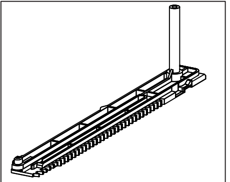

9. UD Base Assy

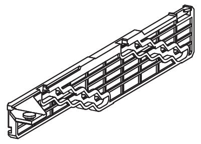

10. UD Connection Lever

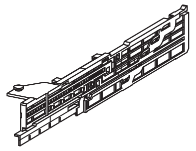

11. Lock Lever 1

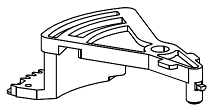

12. Tray

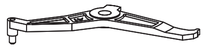

13. Play Lever B

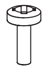

14. Tray Drive Rack

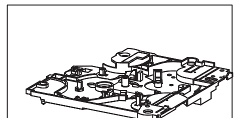

15. UD Rack L

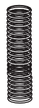

16.UD Rack R

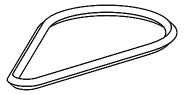

17. Trigger Gear

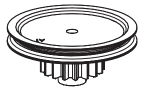

18. Lock Lever 2

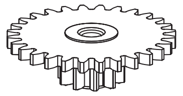

19. Screw

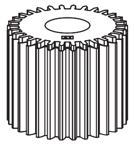

20. Pitch Plate

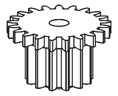

21. Change Spring

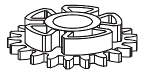

22. Belt

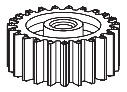

23. Pulley Gear

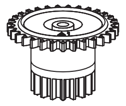

24. Tray Relay Gear

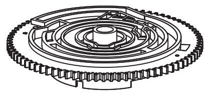

25. Play Gear 2

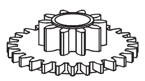

26. Long Gear

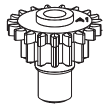

27 UD Gear 2

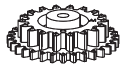

28. Relay Gear 3

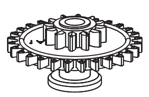

29. Relay Gear 1

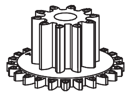

30. Cam Gear

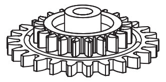

31. UD Gear 1

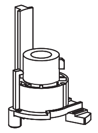

32. Switching Gear

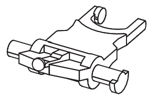

33. Relay Gear 2

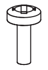

34. Function Gear

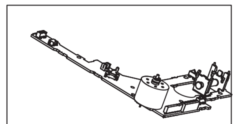

35. Main Drive Gear

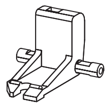

36. Play Gear 1

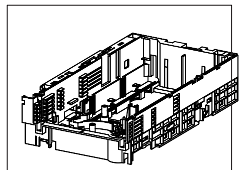

37. Play Switch Lever

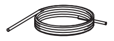

38. Function Lever

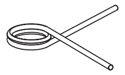

39. Screw


40. CD Loading PCB


41. Plunger Lever


42. Mech Base


43. Play Lever Spring


44. Limit Spring

7 Assembling and Disassembling Procedure.

7.1. Disassembling Procedures

Caution:

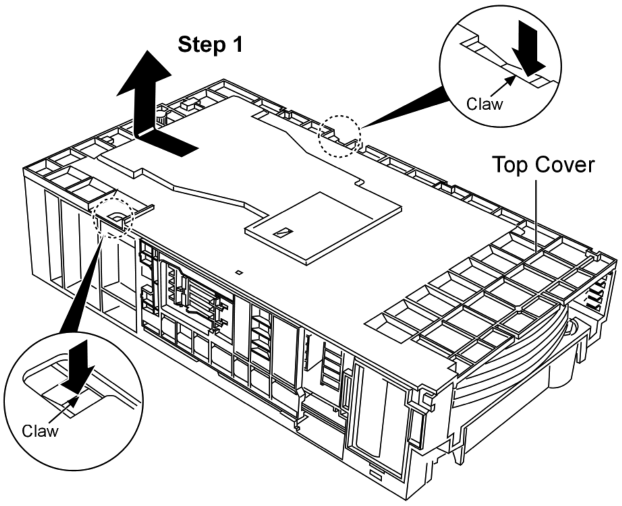
Do ensure that the main unit is set to service mode before repair.

For information on setting to service mode for changer unit, pls refer to section 5.3.

Note:

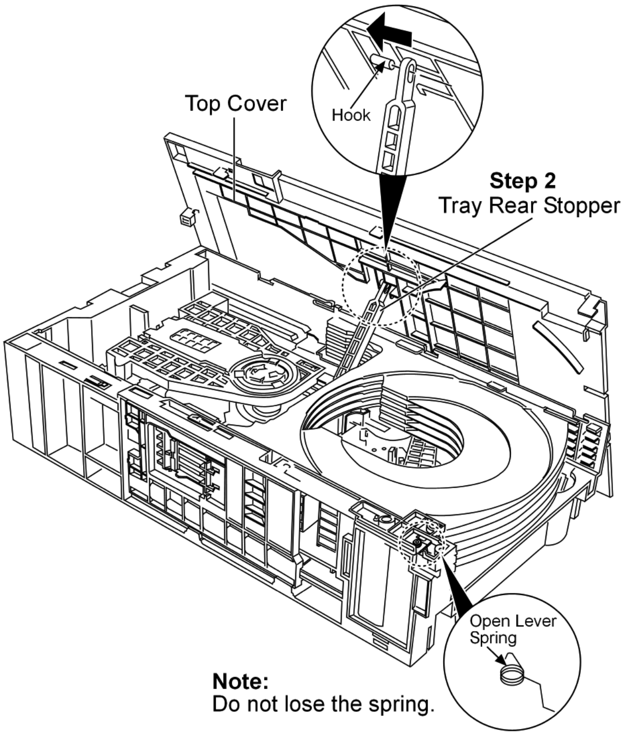
Change unit (CRS1) reliability test must be carry out in complete unit or using the Service P.C.B (Refer section 8).

7.1.1. Disassembly of UD Base Assembly


Step 1
Claw
Top Cover
Claw

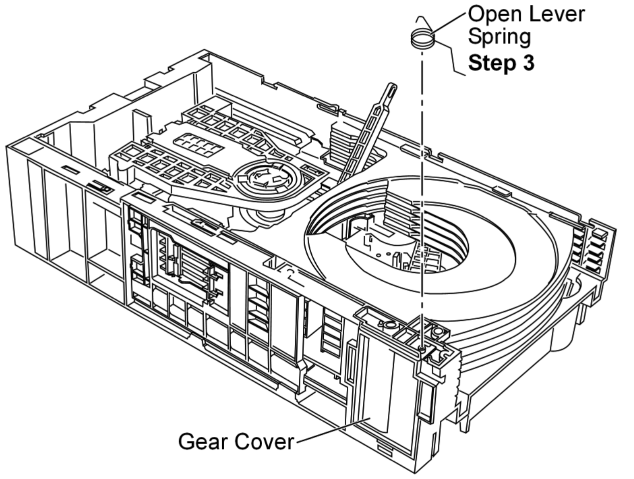
Step 1: Press the 2 claws downwards and push the top cover backwards and lift up the top cover to remove it.

Caution: Do not exert strong force on the claws when pressing the claws.


Top Cover
Hook
Step 2
Tray Rear Stopper
Open Lever Spring

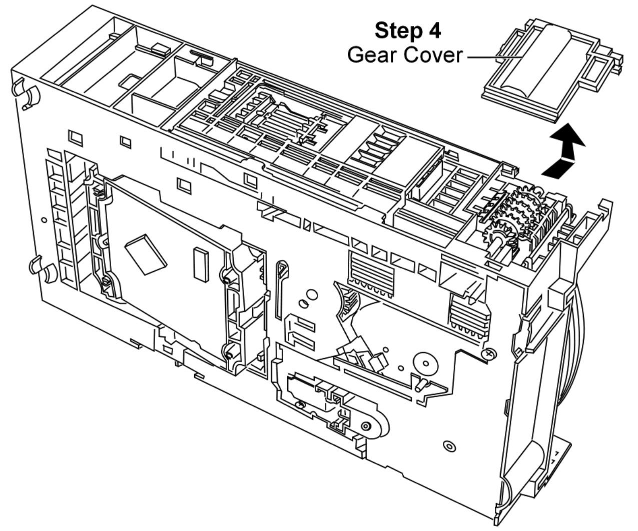
Note:
Do not lose the spring.

Step 2: Release the top cover from the tray rear stopper as arrow shown and remove the top cover.

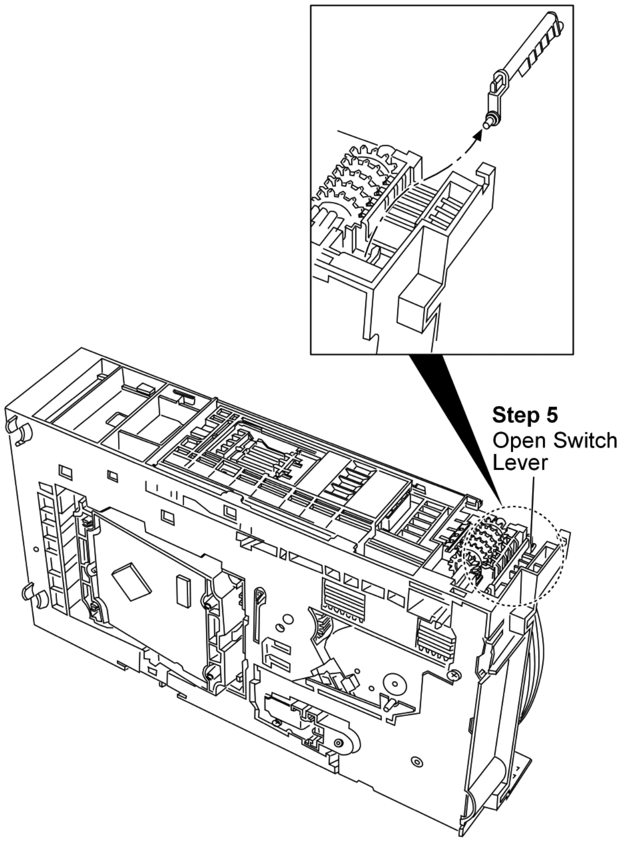

Open Lever Spring
Step 3
Gear Cover

Step 3: Remove the open lever spring from the gear cover.

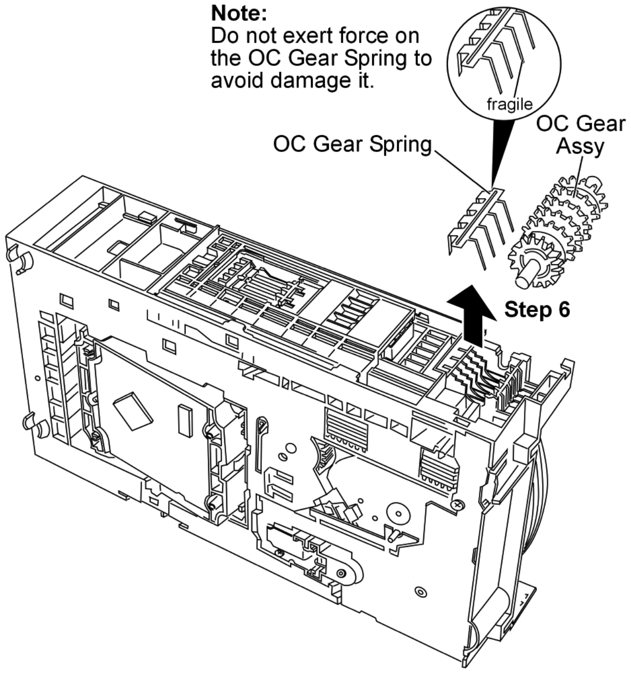
Caution: Ensure the open lever spring is handle properly and keep it in a safe place.


Step 4
Gear Cover

Step 4: Push forwards and remove the gear cover as arrow shown.


Step 5
Open Switch Lever

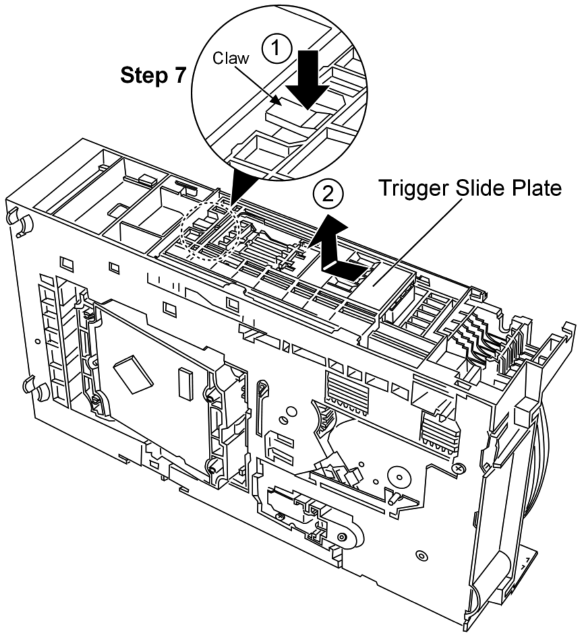
Step 5: Remove the open switch lever.


Note:
Do not exert force on the OC Gear Spring to avoid damage it.

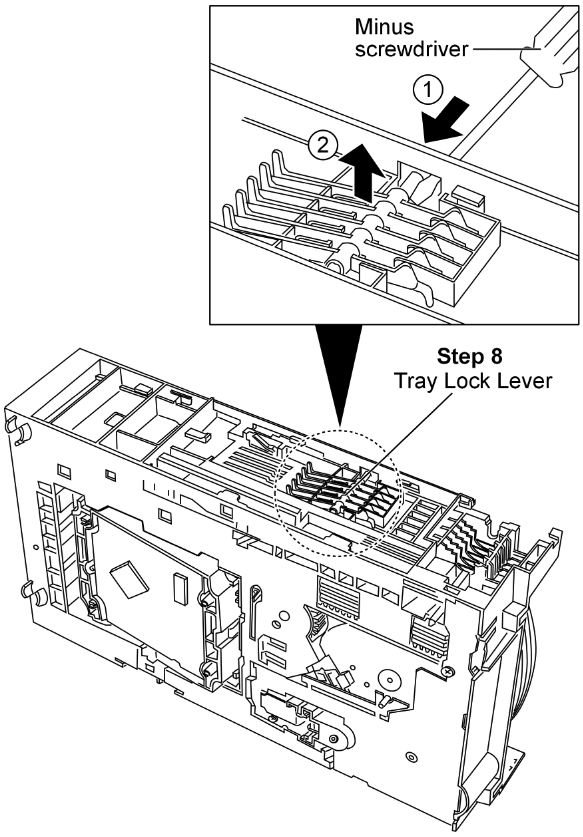
fragile
OC Gear Spring
OC Gear Assy
Step 6

Step 6: Remove the OC gear assy followed by the OC gear spring as arrow shown.

Caution: Ensure the OC gear assy and OC gear spring are handle properly and keep them in a safe place.

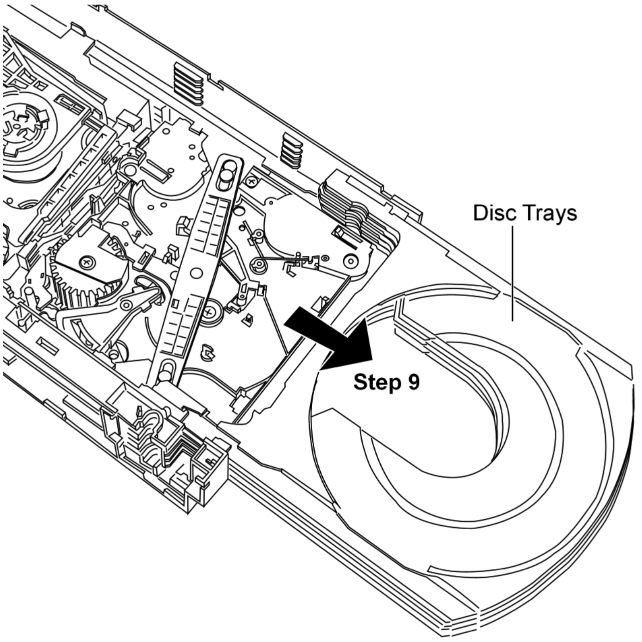

Step 7
Claw
①
②
Trigger Slide Plate

Step 7: Press the claw, push backwards and remove the trigger slide plate as arrows shown.

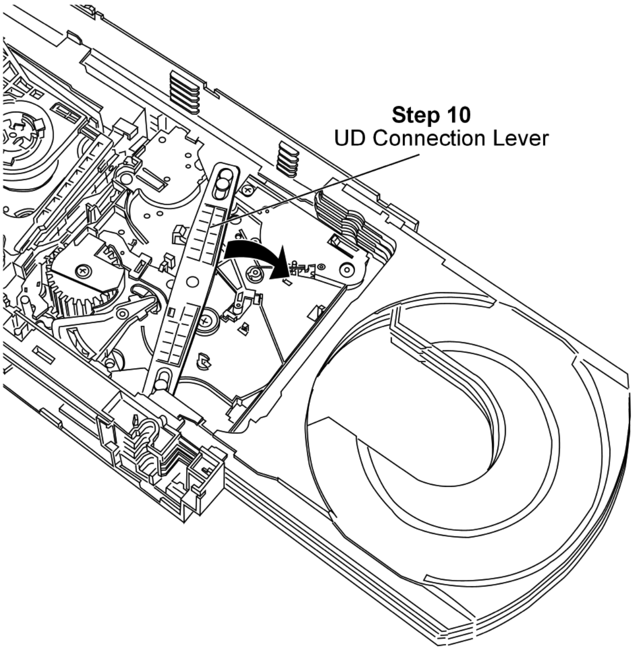

Minus screwdriver
①
②
Step 8
Tray Lock Lever

Step 8: Use a minus screwdriver slot into the gap and push out the tray lock lever as arrows shown.

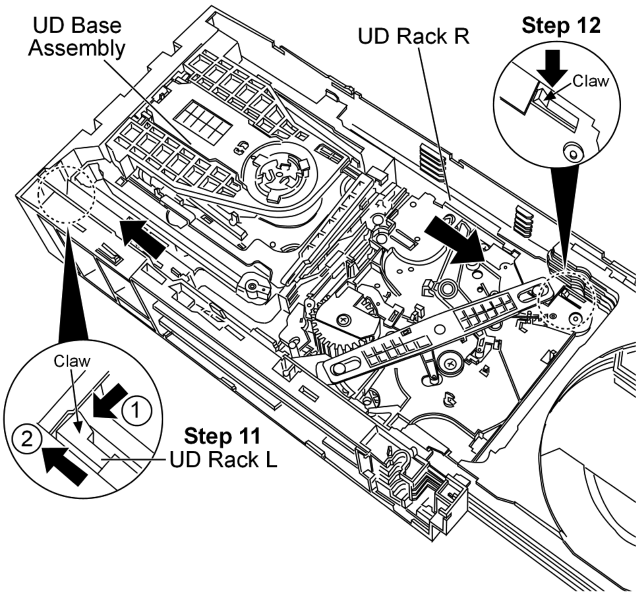
Caution: Do not exert force as it may cause damage to the tray lock lever.


Disc Trays
Step 9

Step 9: Push the disc trays towards the front as arrow shown.

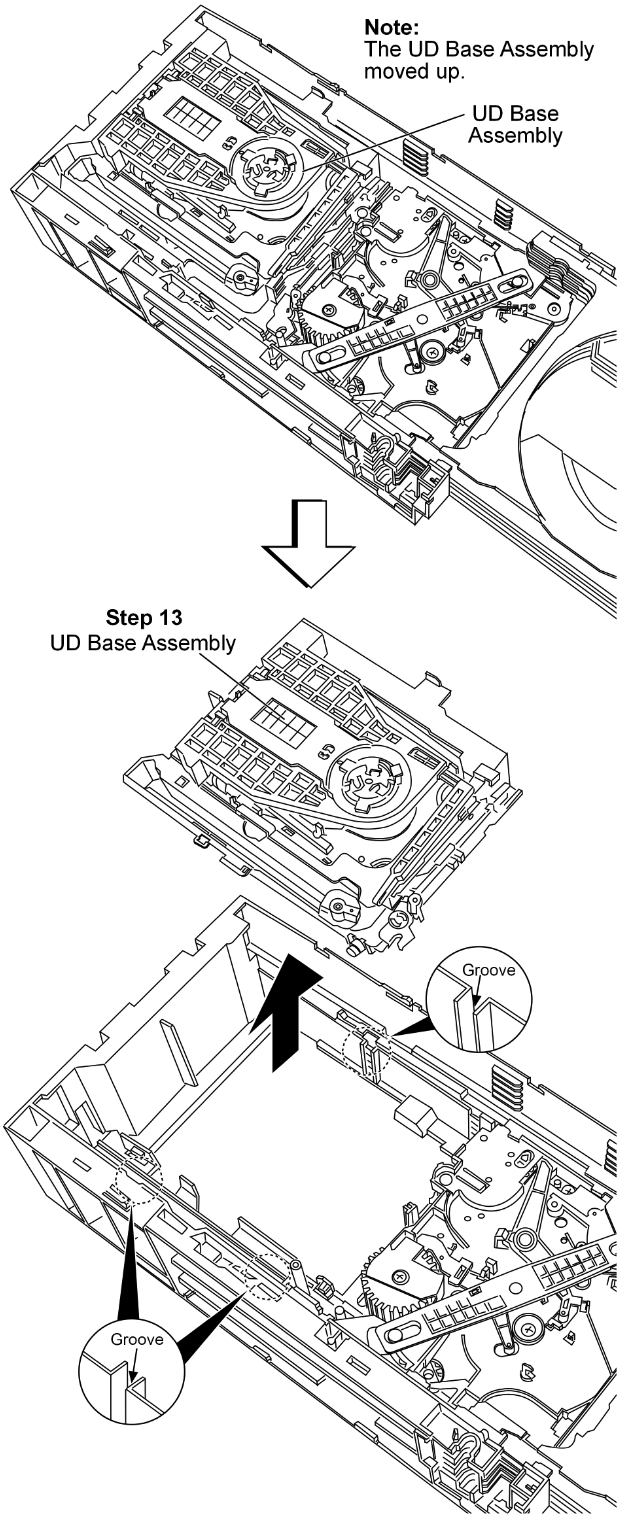

Step 10
UD Connection Lever

Step 10: Turn the UD connection lever clockwise.


UD Base Assembly
UD Rack R
Step 12
Claw
Claw
1
2
Step 11
UD Rack L

Step 11: Push the claw and slide the UD rack L as arrows shown.

Step 12: Press and hold the claw at the pitch plate then push the UD rack R as arrows shown.



Note:
The UD Base Assembly moved up.

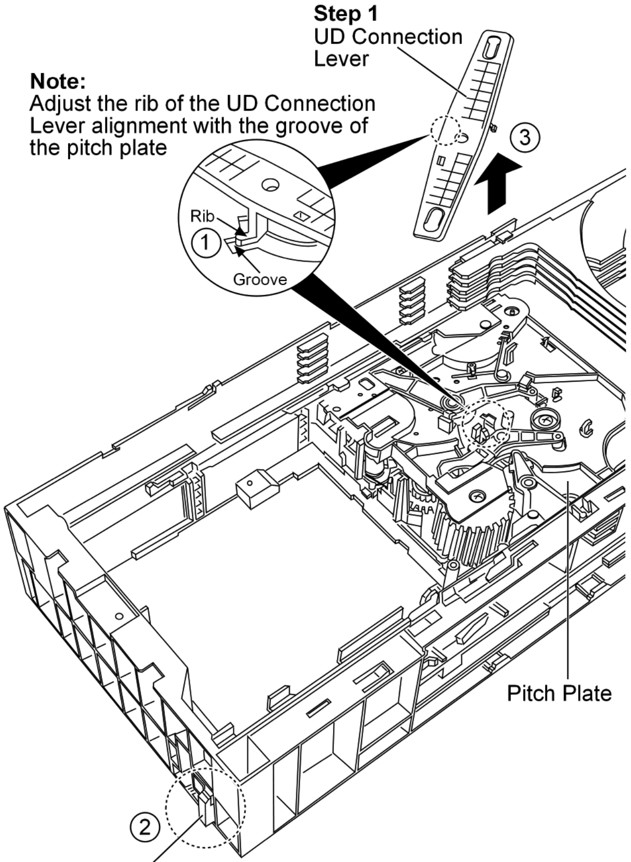
UD Base Assembly
Step 13
UD Base Assembly
Groove
Groove

Step 13: Remove the UD base assembly as arrow shown.

7.1.2. Disassembly of Disc Trays

- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)

- **Disassembly of UD connection lever**

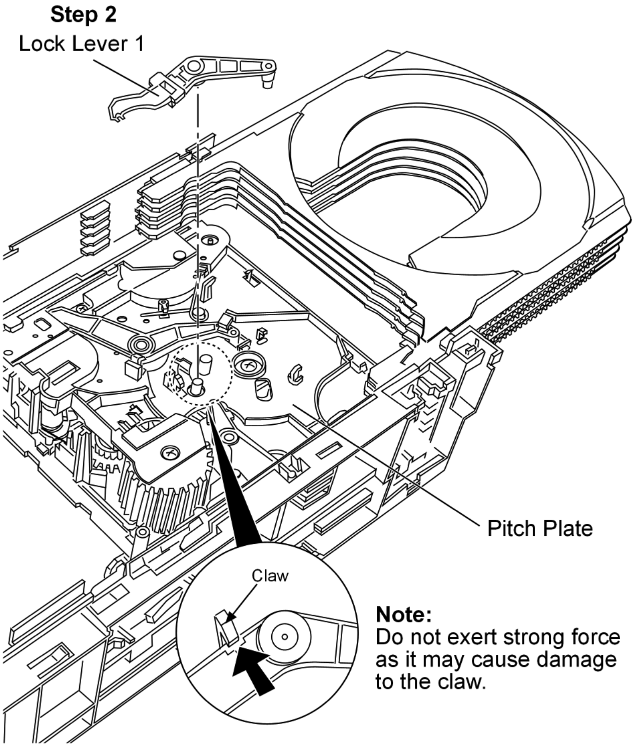


Note:
Adjust the rib of the UD Connection Lever alignment with the groove of the pitch plate

Note:
Ensure the UD Rack L is out of the chassis before remove the UD connection lever.

Step 1
UD Connection Lever
Rib
①
Groove
③
Pitch Plate
②
UD Rack L

Step 1: Remove the UD connection lever.

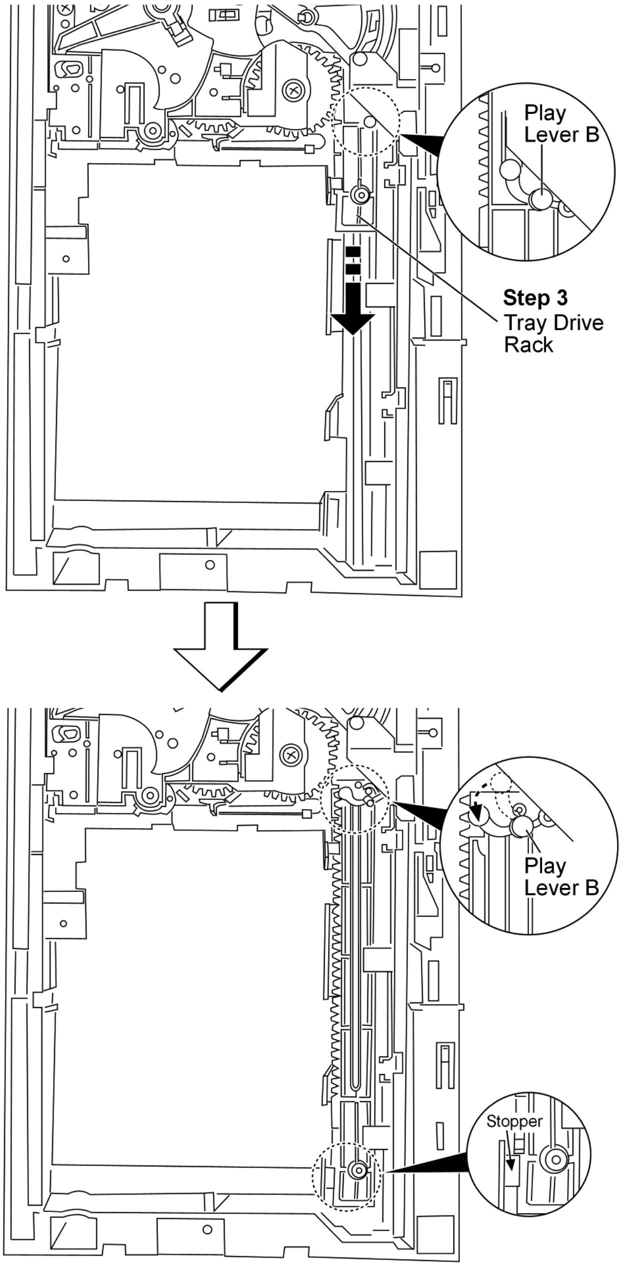


Note:
Do not exert strong force as it may cause damage to the claw.

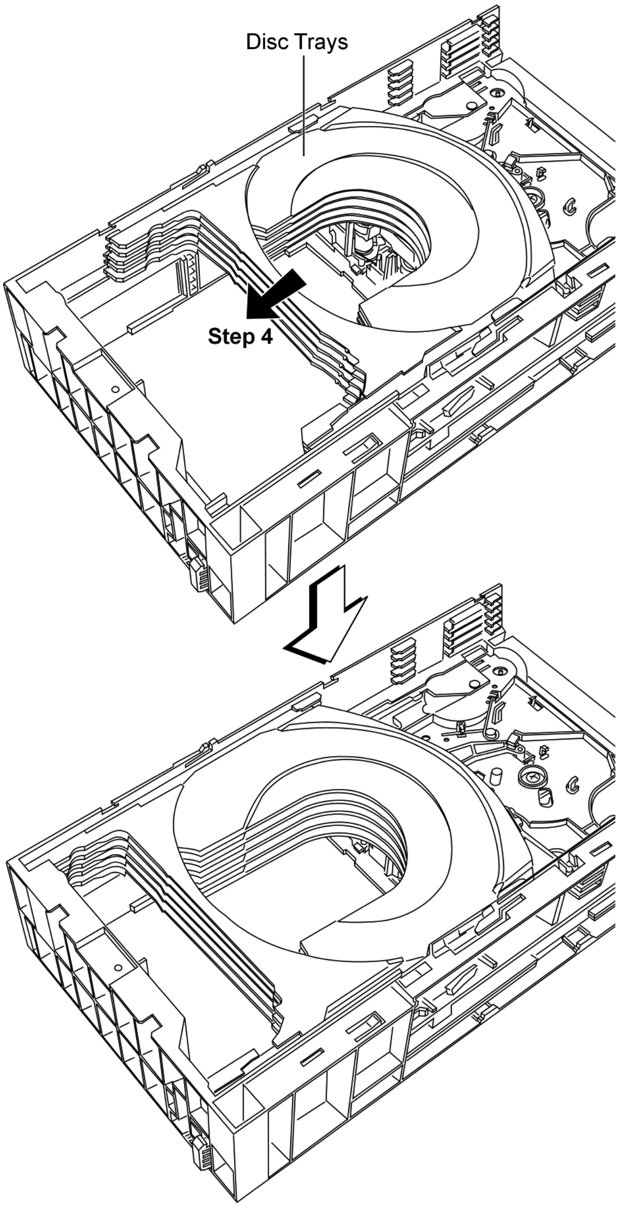
Step 2
Lock Lever 1
Pitch Plate
Claw

Step 2: Push the claw as arrow shown and remove the lock lever 1.

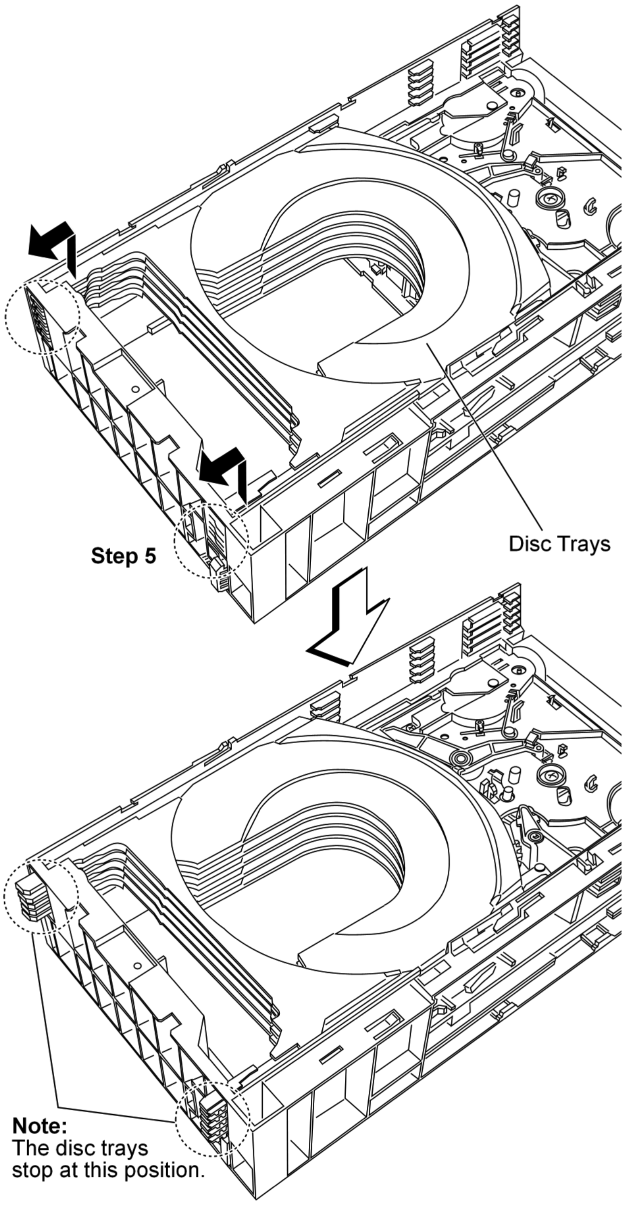
Caution: Do not exert force as it may cause the claw to be damage.


Play
Lever B
Step 3
Tray Drive
Rack
Play
Lever B
Stopper

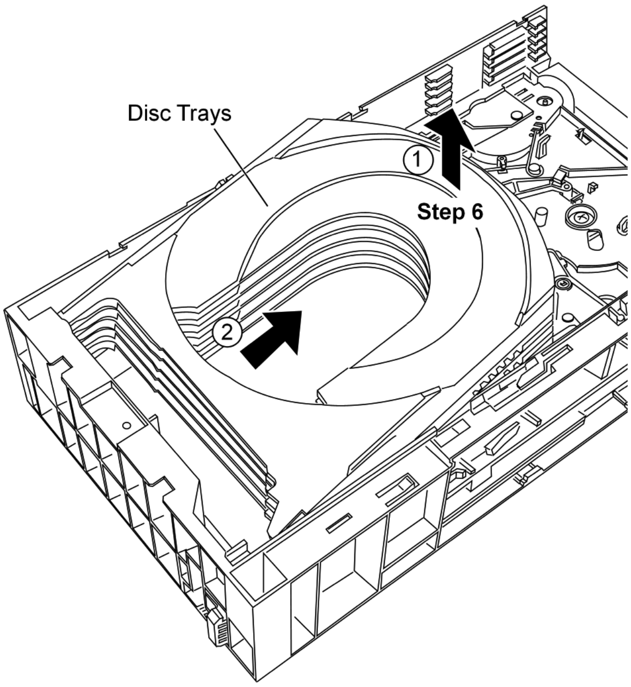
Step 3: Push the tray drive rack as arrow shown to hit the stopper.


Disc Trays
Step 4

Step 4: Push the 5 disc trays as arrow shown until it stop (bottom picture).


Step 5
Disc Trays
Note:
The disc trays
stop at this position.

Step 5: Lift up slightly and push the 5 disc trays further as arrows shown.

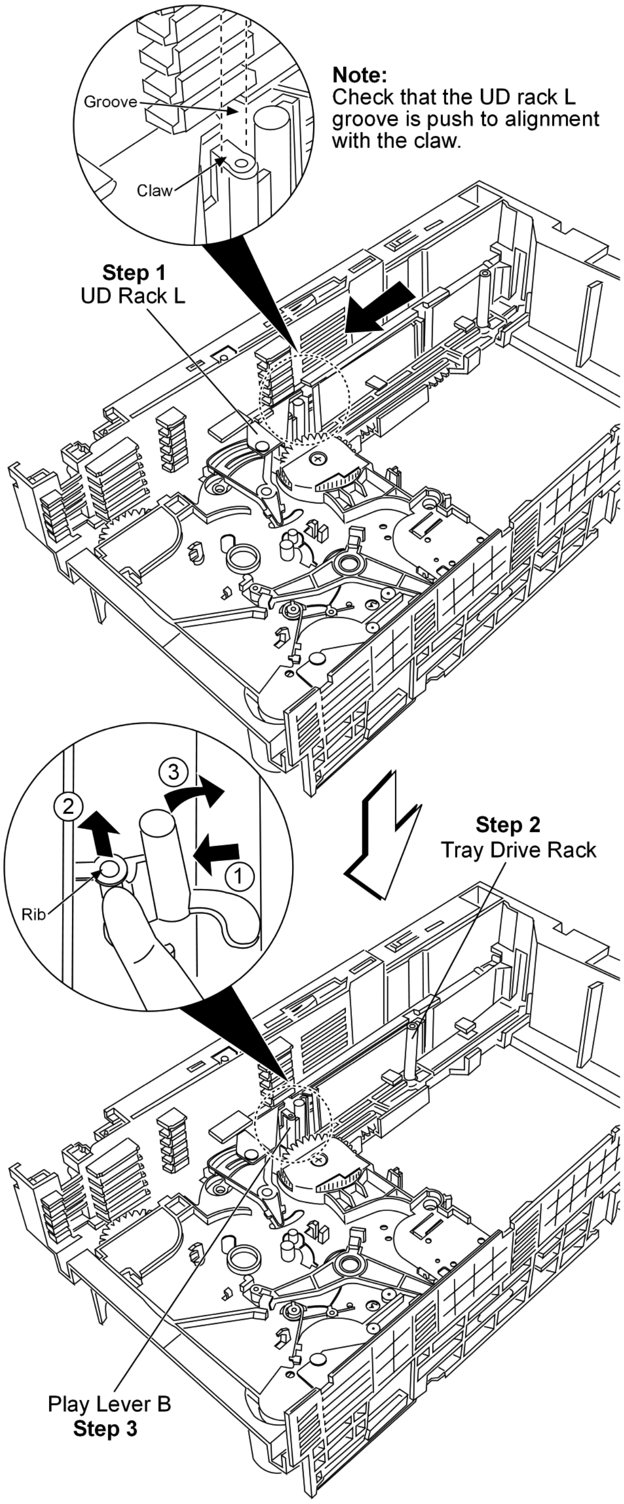

Disc Trays
①
Step 6
②

Step 6: Tilt and remove the 5 disc trays as arrows shown.

7.1.3. Disassembly of CD Loading Unit

- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)
- Follow the (Step 1) to (Step 6) of item 7.1.2. (Disassembly of Disc Trays)

- **Disassembly of play lever B**


Groove
Claw
Step 1
UD Rack L
Step 2
Tray Drive Rack
3
2
1
Rib
Play Lever B
Step 3

Note:
Check that the UD rack L groove is push to alignment with the claw.

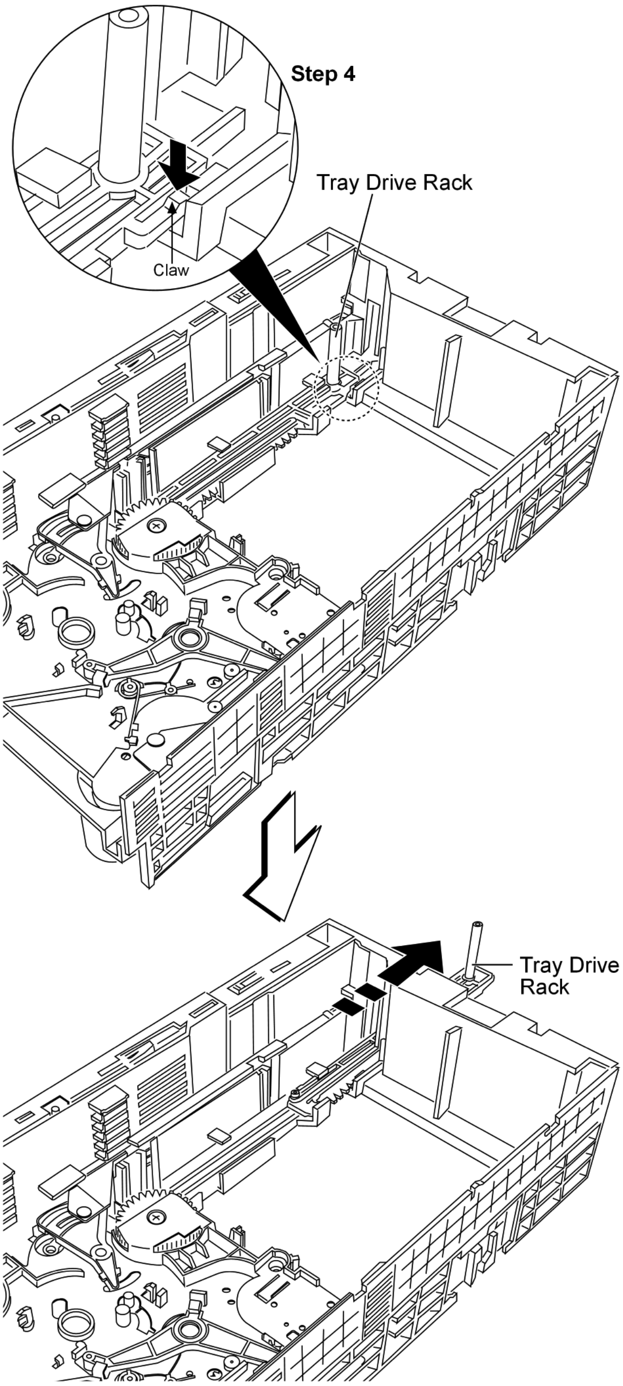
Step 1: Push the UD rack L forwards as arrow shown.

Step 2: Position the tray drive rack in the center.

Step 3: Push the play lever B and lift up the rib slightly to remove the play lever B as arrows shown.

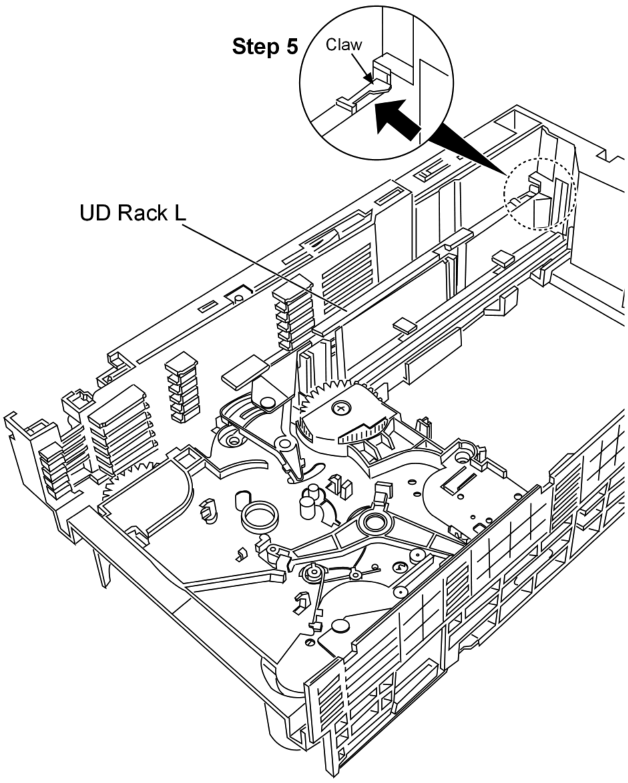
Caution: Make sure do not break the rib when removing the play lever B. The rib break easily by using the tools.

· Disassembly of tray drive rack

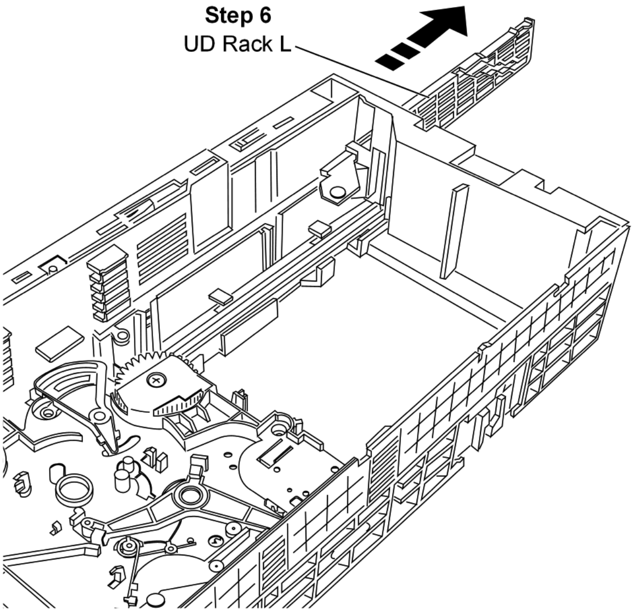

Step 4
Tray Drive Rack
Claw
Tray Drive Rack

Step 4: Release the claw as arrow shown (top picture) then slide and remove the tray drive rack as arrow shown (bottom picture).

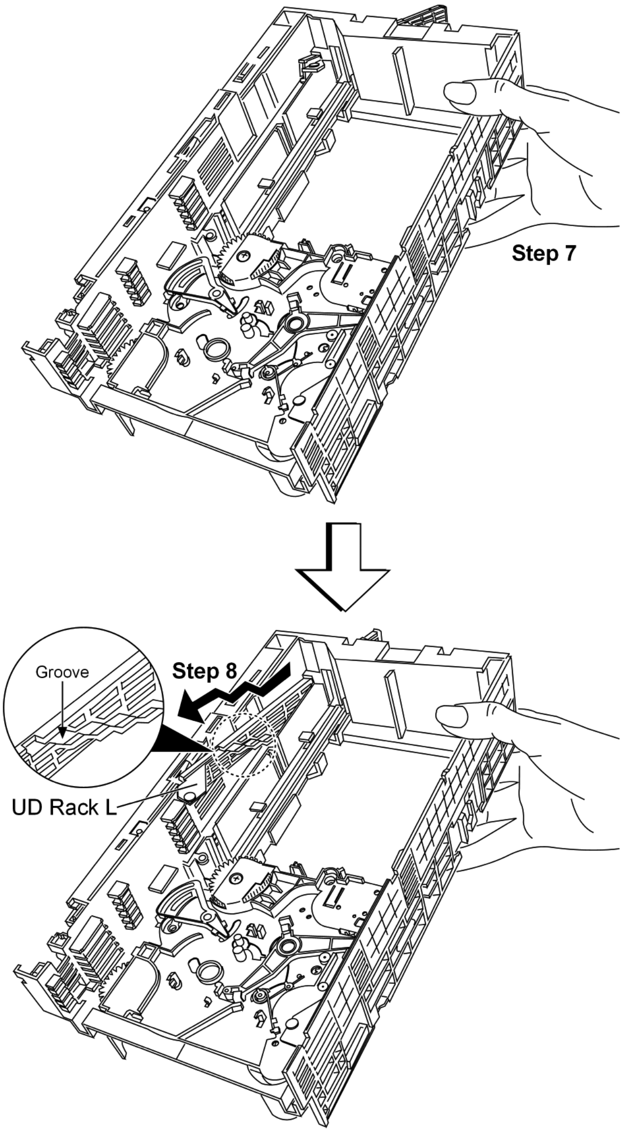
· Disassembly of UD rack L


Step 5
Claw
UD Rack L

Step 5: Push the claw as arrow shown.


Step 6
UD Rack L

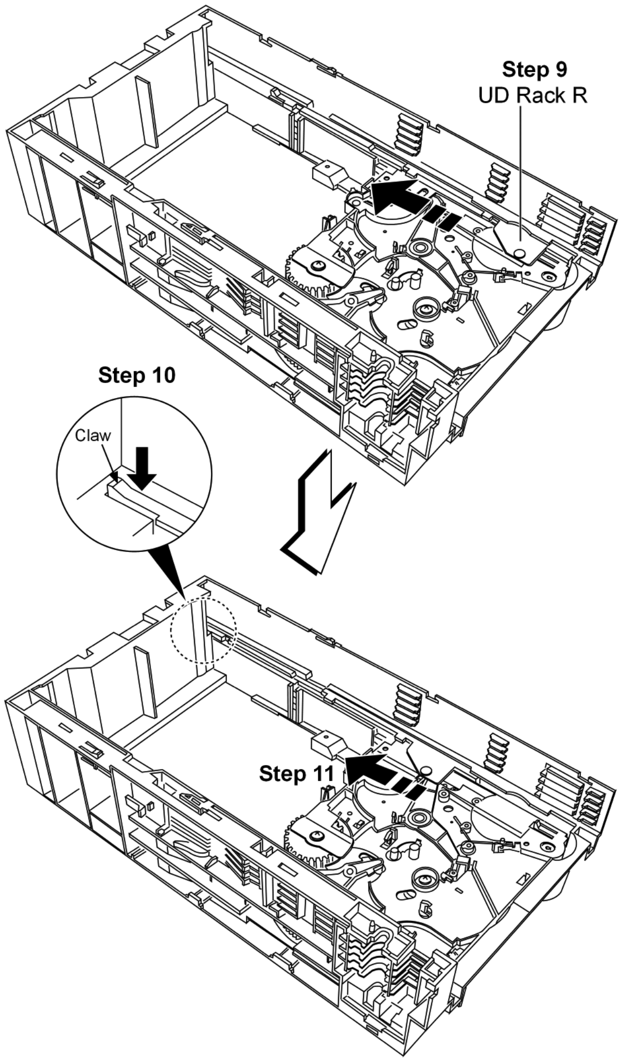
Step 6: Slide the UD rack L as arrow shown.

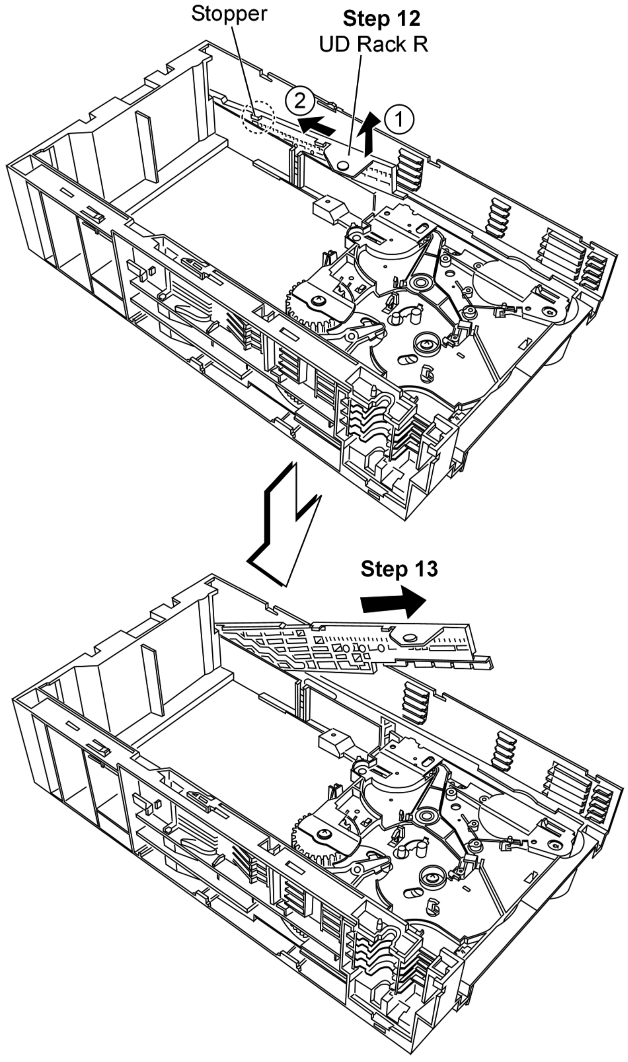

Step 7
Groove
Step 8
UD Rack L

Step 7: Lift up the unit as shown.

Step 8: Follow the groove to lift up and remove the UD rack L as arrow shown.

· Disassembly of UD rack R


Step 9
UD Rack R
Step 10
Claw
Step 11


Stopper
Step 12
UD Rack R
②
①
Step 13

Step 9: Slide the UD rack R as arrow shown until it stop.

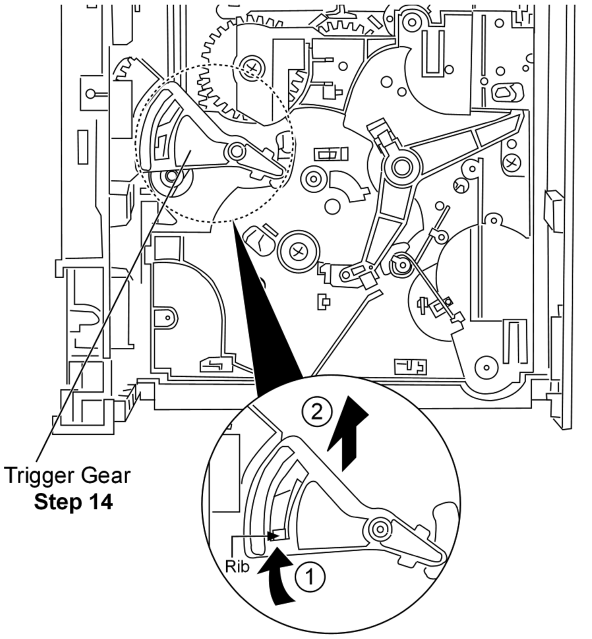
Step 10: Press the claw as arrow shown.

Step 11: Continue to slide the UD rack R as arrow shown until it stop.

Step 12: Lift up the UD rack R and slide backwards to stop at the stopper.

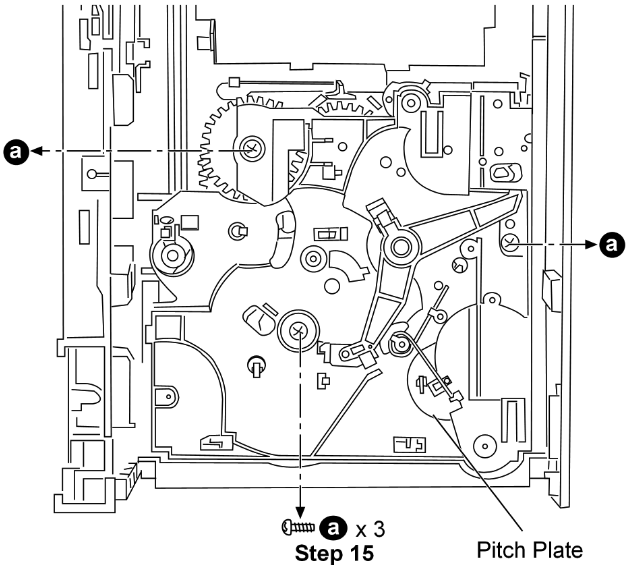
Step 13: Remove it as arrow shown.

· **Disassembly of trigger gear**

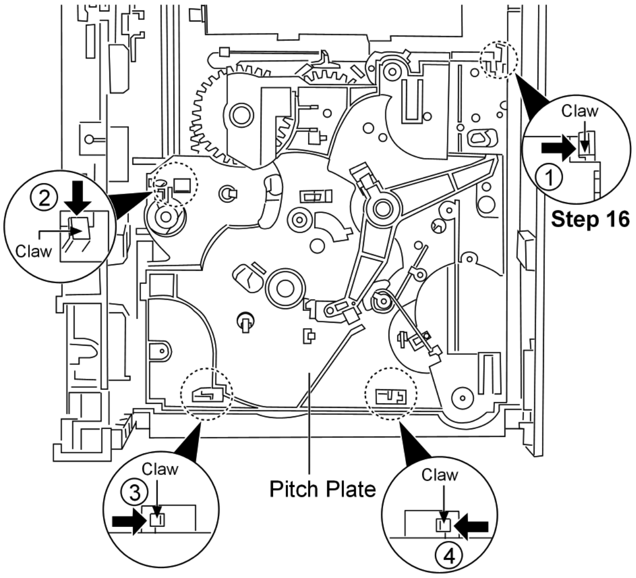

②
Trigger Gear
Step 14
Rib
①

Step 14: Turn the trigger gear clockwise and remove it as arrows shown.

· Disassembly of pitch plate

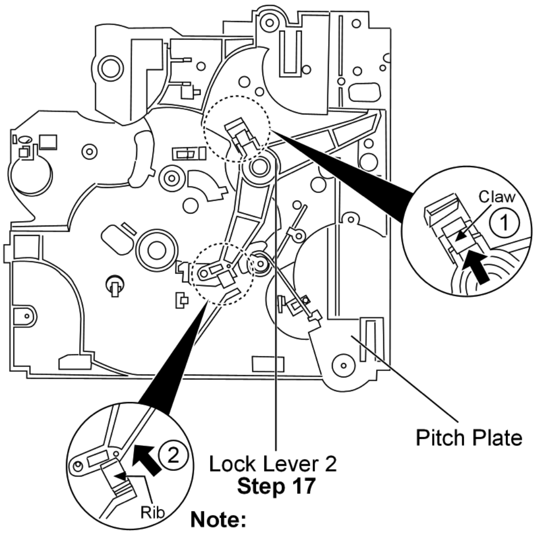

a
a
a x 3
Step 15
Pitch Plate

Step 15: Remove 3 screws


②
Claw
Claw
①
Step 16
Claw
③
Pitch Plate
Claw
④

Step 16: Release 4 claws as arrows shown in order followed by detach the pitch plate.

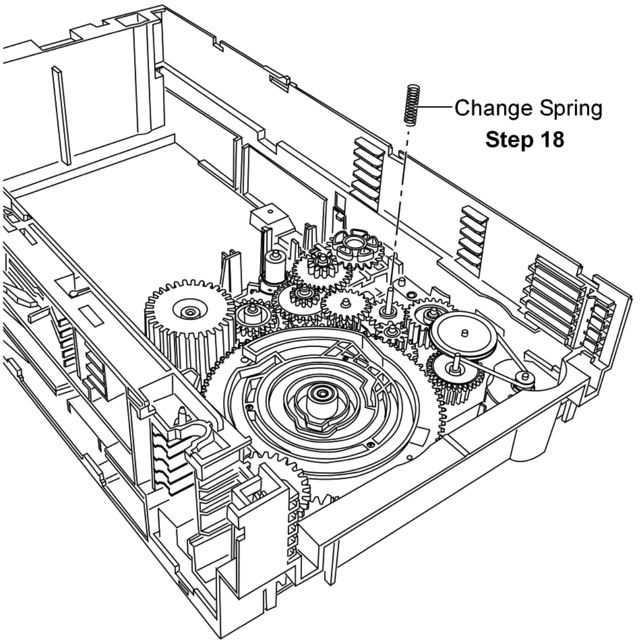
· Disassembly of lock lever 2


Claw
①
②
Rib
Lock Lever 2
Step 17
Pitch Plate

Note:
Remove the Lock Lever 2 as arrow shown without pushing the rib.

Step 17: Release the claw and pull out the lock lever 2 as arrows shown. (The rib is fragile, do not exert force on it).

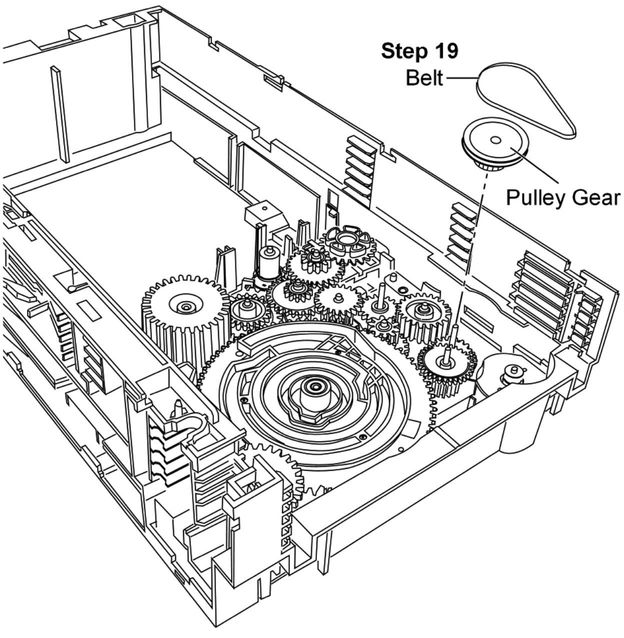
· Disassembly of change spring

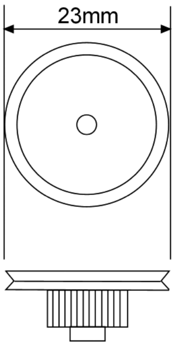

Change Spring
Step 18

Step 18: Remove the change spring.

Caution: Handle the change spring carefully, do not lose it. Put in a proper storage location.

· Disassembly of pulley gear and belt

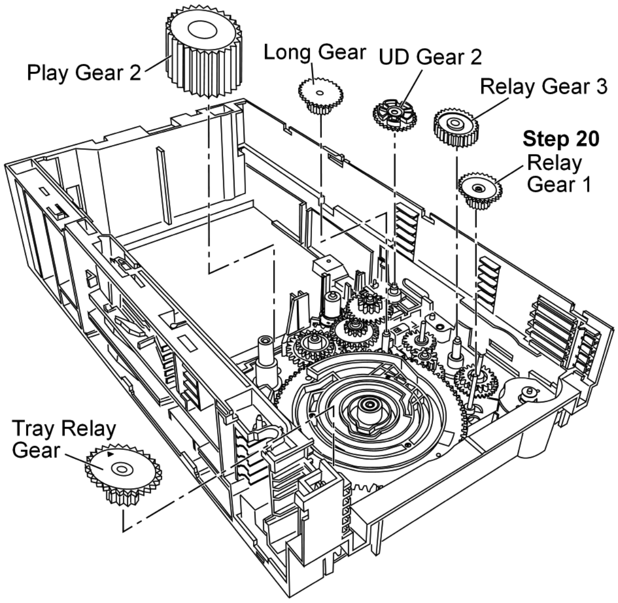

Step 19
Belt
Pulley Gear

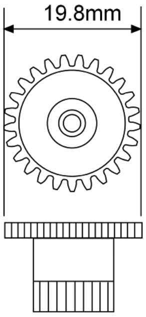


Pulley Gear

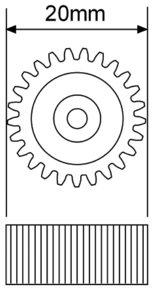
Step 19: Remove the belt and pull out the pulley gear.

· Disassembly of gears

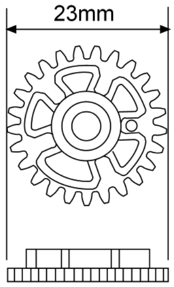

Play Gear 2
Long Gear
UD Gear 2
Relay Gear 3
Step 20
Relay Gear 1
Tray Relay Gear



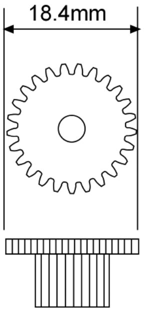
Relay Gear 1



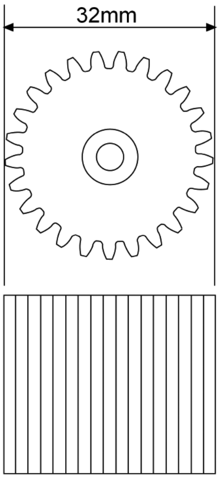
Relay Gear 3



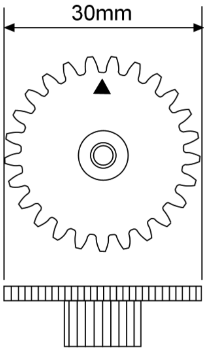
UD Gear 2



Long Gear

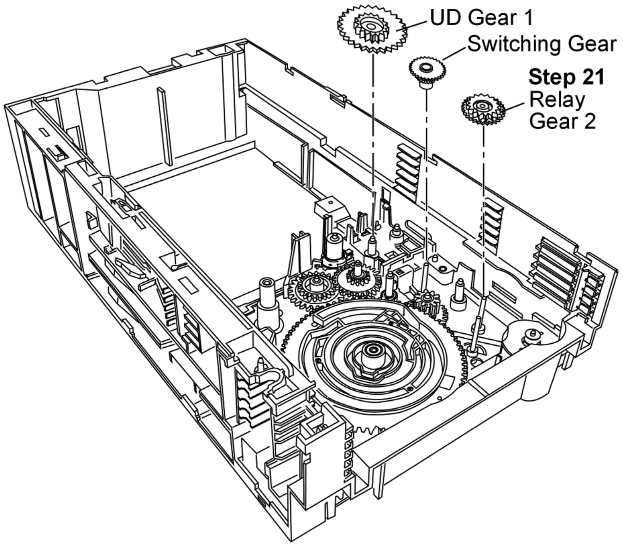


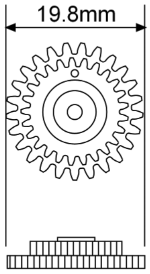
Play Gear 2



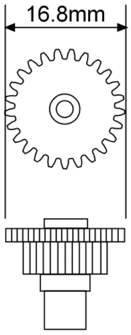
Tray Relay Gear

Step 20: Remove the relay gear 1, relay gear 3, UD gear 2, long gear, play gear 2 and tray relay gear in order.

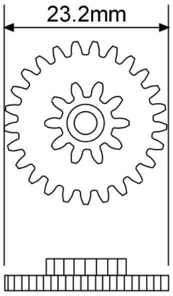

UD Gear 1
Switching Gear
Step 21
Relay Gear 2



Relay Gear 2



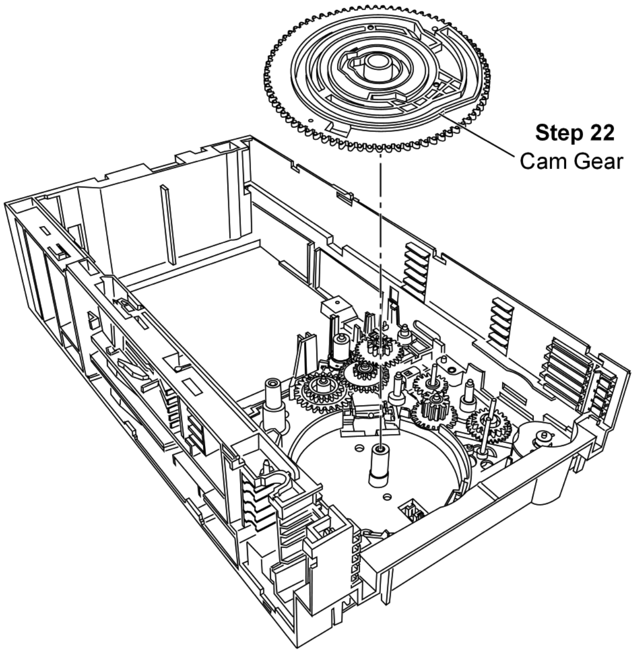
Switching Gear



UD Gear 1

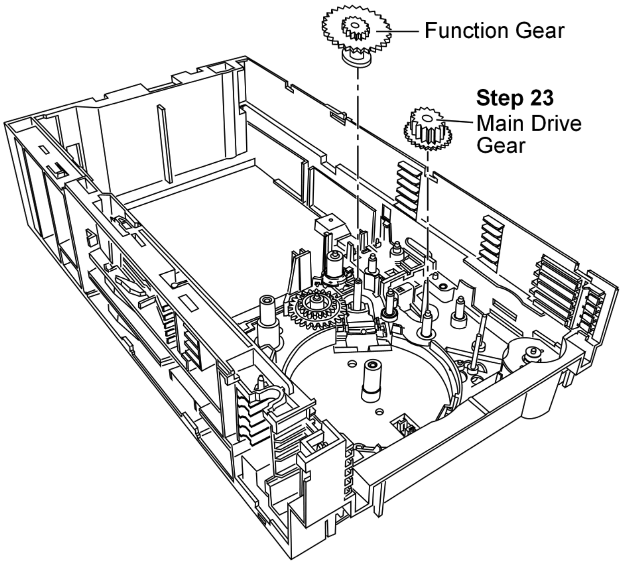
Step 21: Remove relay gear 2, switching gear, UD gear 1 in order.

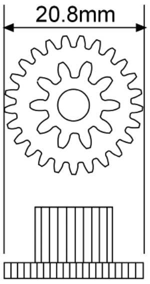
· Disassembly of cam gear


Step 22
Cam Gear

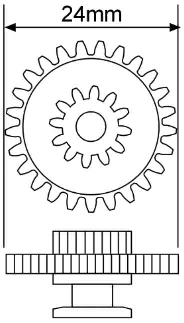
Step 22: Remove cam gear.

· Disassembly of function gear and main drive gear


Function Gear
Step 23
Main Drive Gear



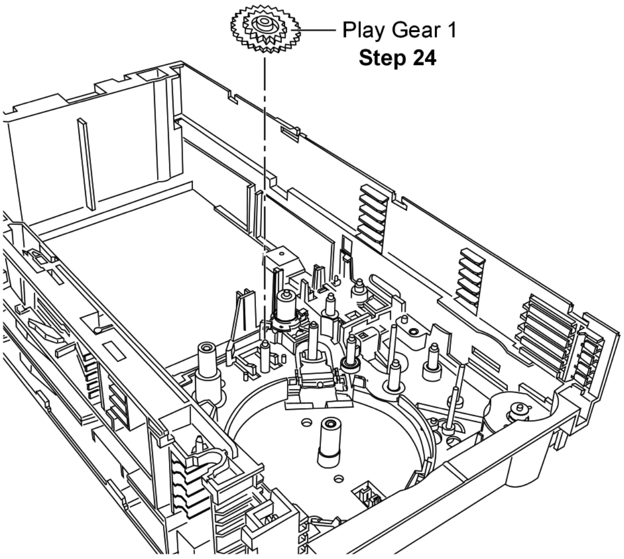
Main Drive Gear

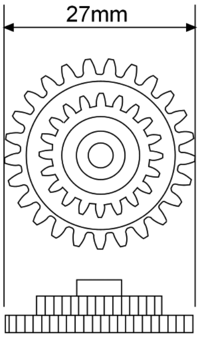


Function Gear

Step 23: Remove main drive gear and function gear.

· Disassembly of play gear 1

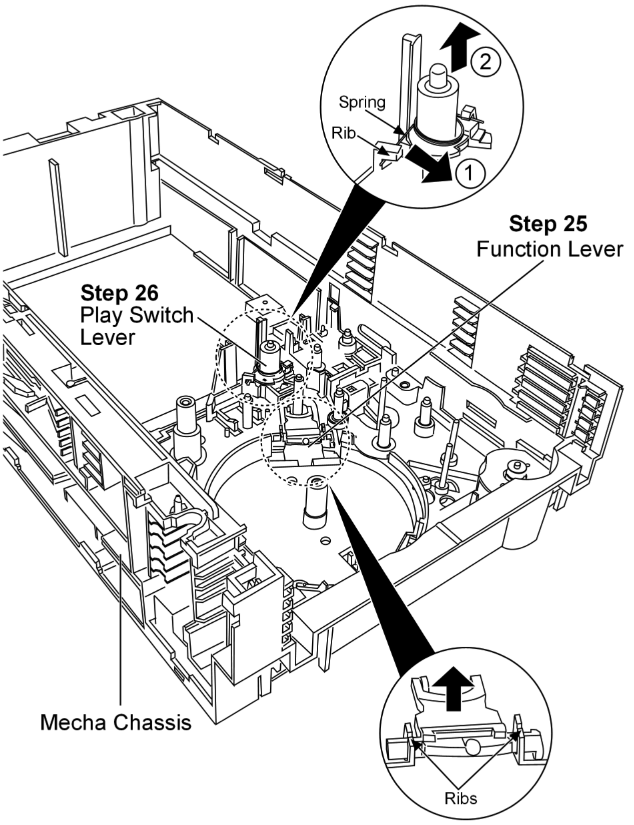

Play Gear 1
Step 24



Play Gear 1

Step 24: Remove play gear 1.

· Disassembly of function lever

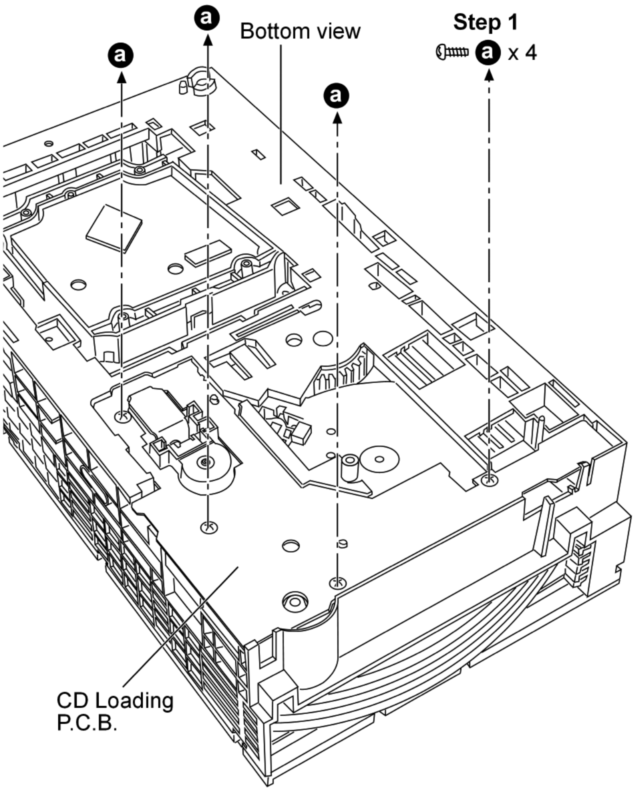

Spring
Rib
2
1
Step 25
Function Lever
Step 26
Play Switch
Lever
Mecha Chassis
Ribs

Step 25: Remove the function lever from the ribs as arrow shown.

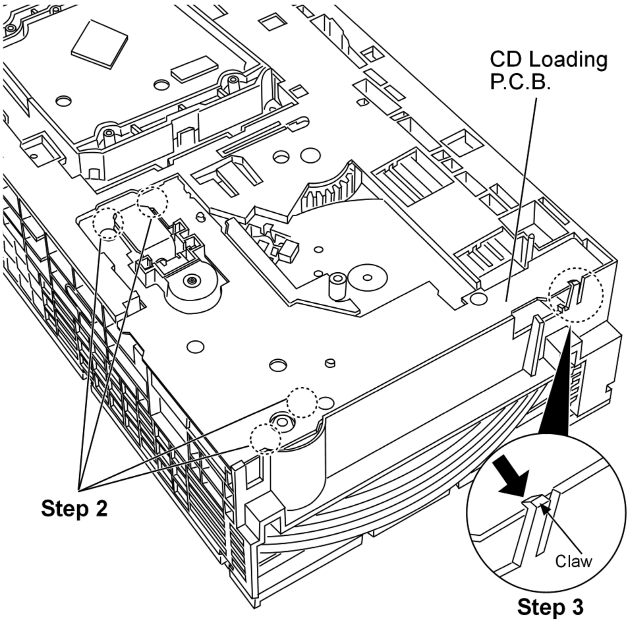
Step 26: Release the spring from the rib as arrow shown to remove the play switch lever.

> **Note: For changing of the mecha chassis, please follow Step 1 to Step 5 of item 7.1.4 (Disassembly of CD Loading P.C.B.), Step 3 to Step 4 of item 7.1.5 (Disassembly of Plunger Lever) and Step 2 of item 7.1.6 (Disassembly of Motor Unit)**

7.1.4. Disassembly of CD Loading P.C.B.

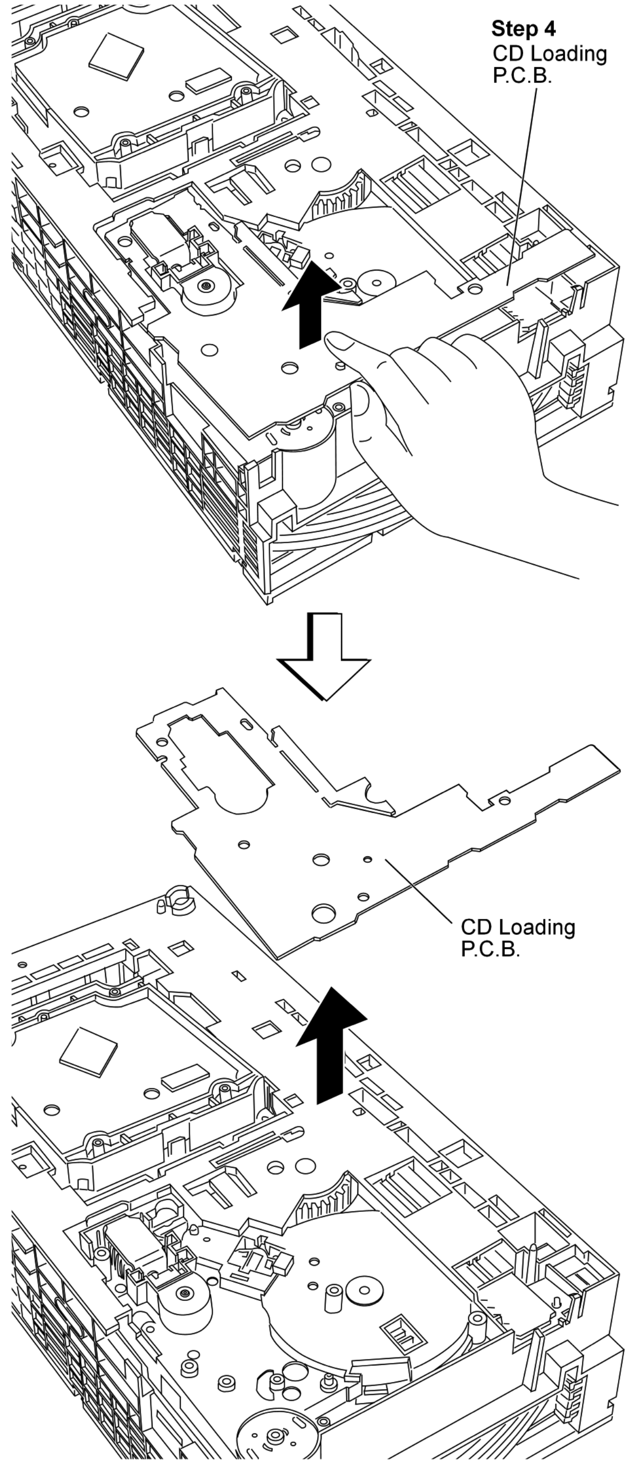

a
a
Bottom view
a
Step 1
a x 4
CD Loading
P.C.B.

Step 1: Turn over the unit and remove 4 screws from the CD Loading P.C.B.


CD Loading
P.C.B.
Step 2
Claw
Step 3

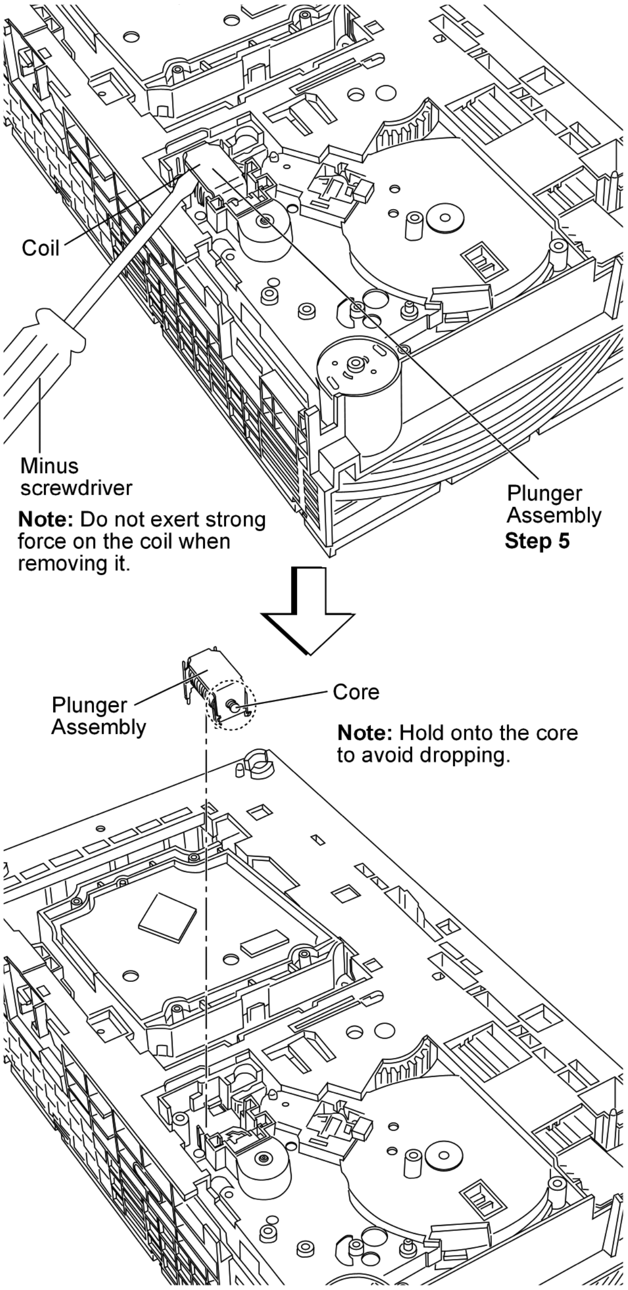
Step 2: Unsolder the 4 points.

Step 3: Release 1 claw as arrow shown.


Step 4
CD Loading
P.C.B.
CD Loading
P.C.B.

Step 4: Remove the CD Loading P.C.B. as arrows shown.

- **Disassembly of plunger assembly**


Coil
Minus
screwdriver
Plunger
Assembly
Step 5
Plunger
Assembly
Core

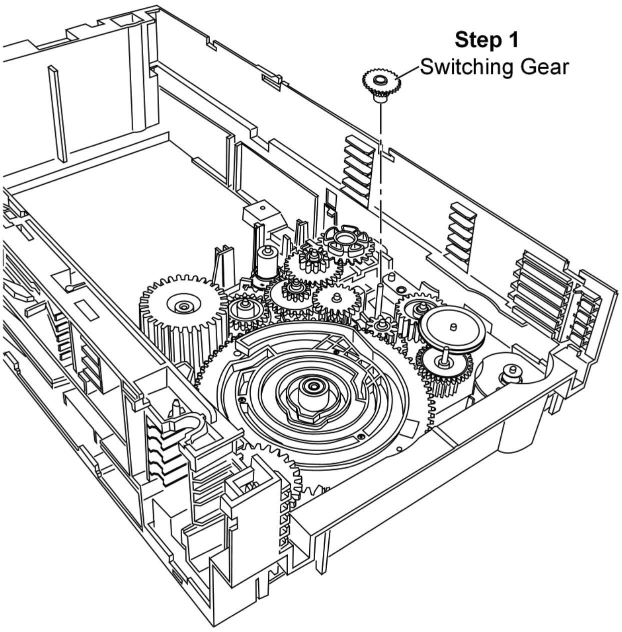
Note: Do not exert strong force on the coil when removing it.

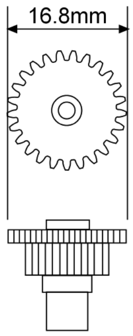
Note: Hold onto the core to avoid dropping.

Step 5: Remove the plunger assembly by using a minus screwdriver.

7.1.5. Disassembly of Plunger Lever

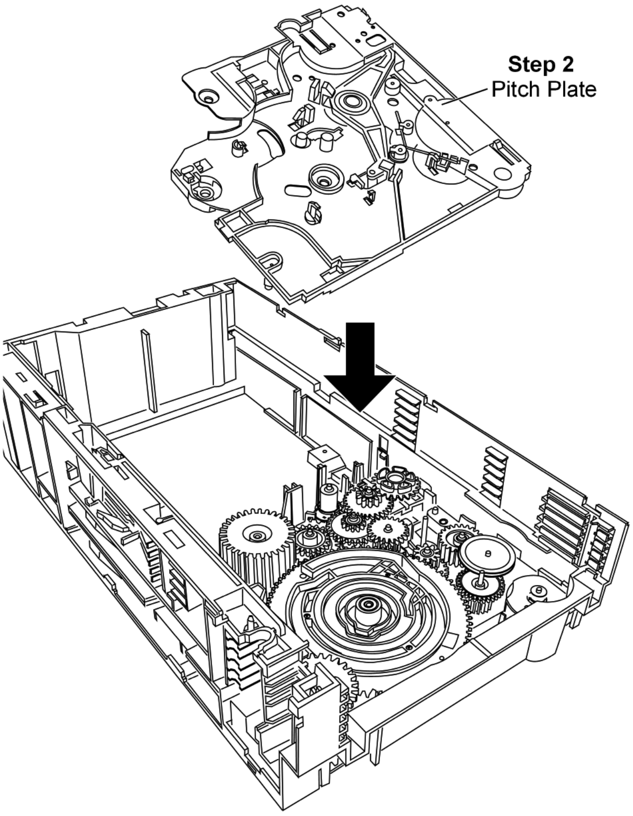
- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)
- Follow the (Step 1) to (Step 6) of item 7.1.2. (Disassembly of Disc Trays)
- Follow the (Step 1) to (Step 18) of item 7.1.3. (Disassembly of CD Loading Unit)
- Follow the (Step 1) to (Step 5) of item 7.1.4. (Disassembly of CD Loading P.C.B.)


Step 1
Switching Gear



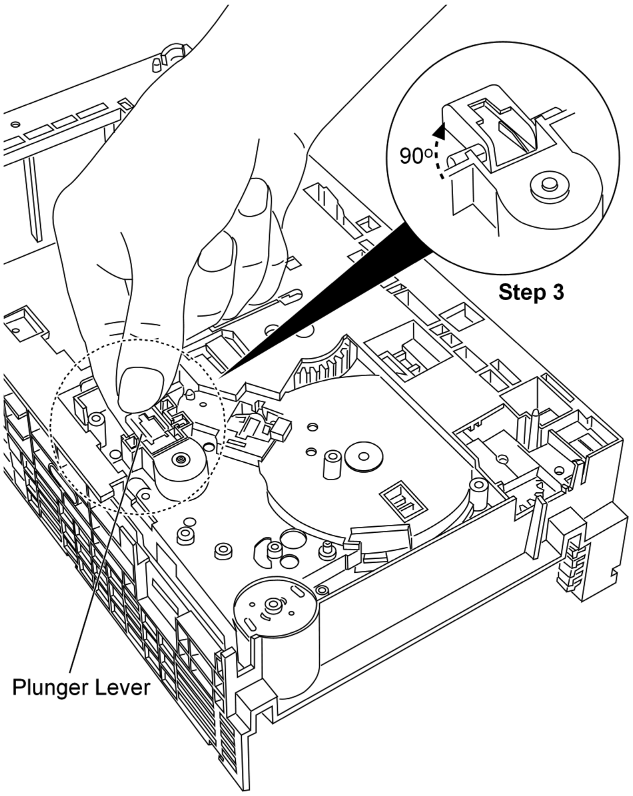
Switching Gear

Step 1: Remove the switching gear.

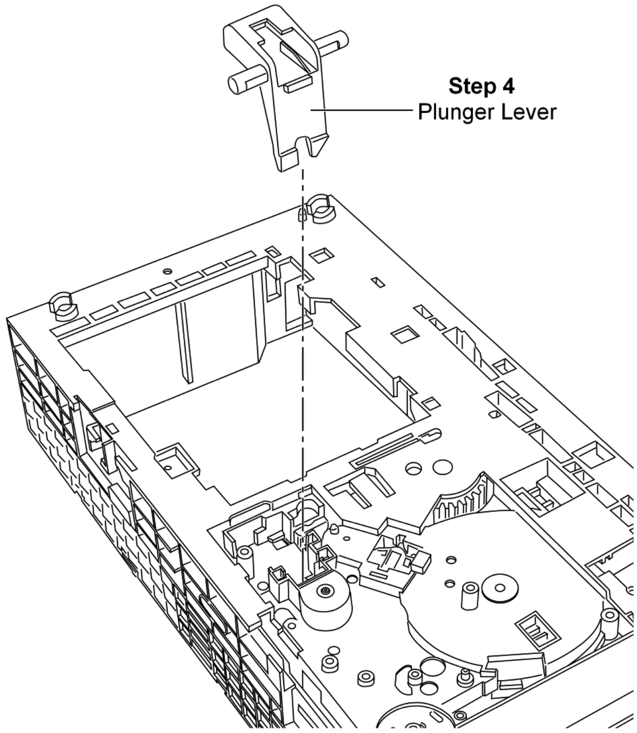

Step 2
Pitch Plate

Step 2: Install the pitch plate.

Note: Ensure the pitch plate seats properly onto it.


90°
Step 3
Plunger Lever

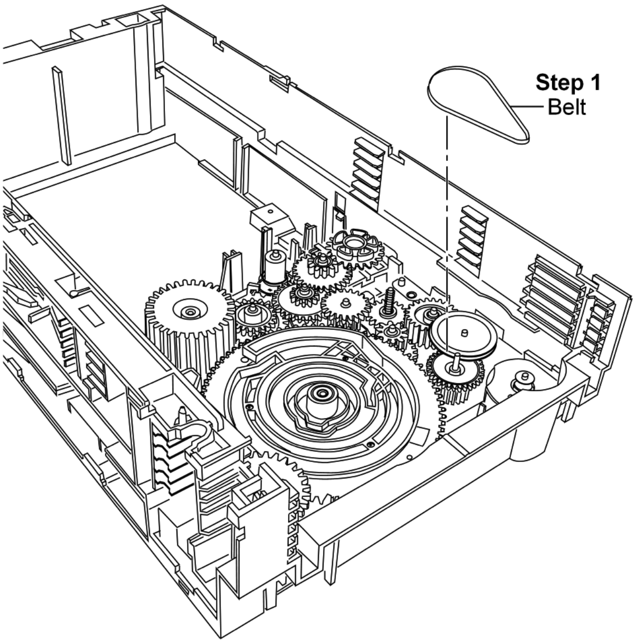
Step 3: Lift up the plunger lever in 90°


Step 4
Plunger Lever

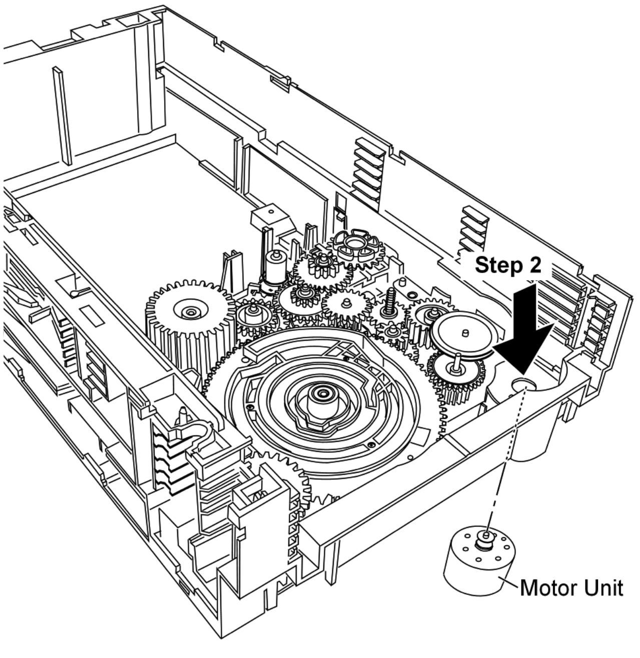
Step 4: Remove the plunger lever in 90° position.

7.1.6. Disassembly of Motor Unit

- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)
- Follow the (Step 1) to (Step 6) of item 7.1.2. (Disassembly of Disc Trays)
- Follow the (Step 1) to (Step 16) of item 7.1.3. (Disassembly of CD Loading Unit)
- Follow the (Step 1) to (Step 4) of item 7.1.4. (Disassembly of CD Loading P.C.B.)



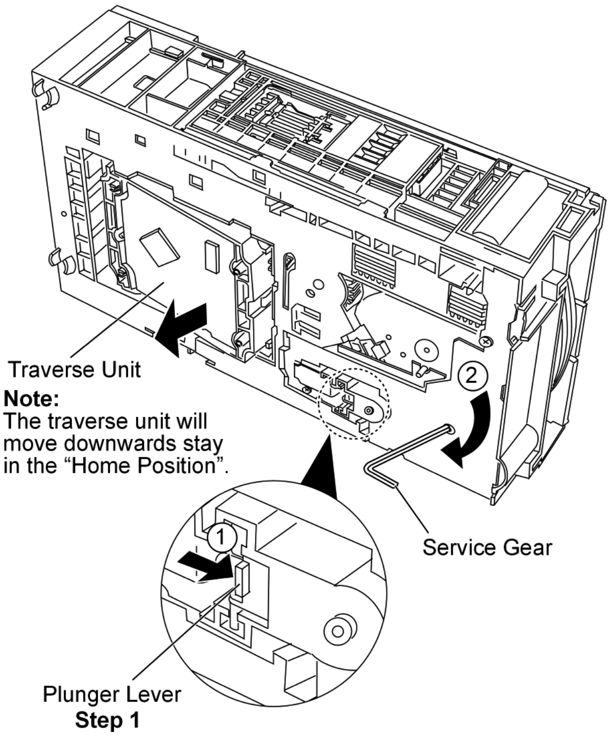
Step 1: Remove the belt.


Step 2
Motor Unit

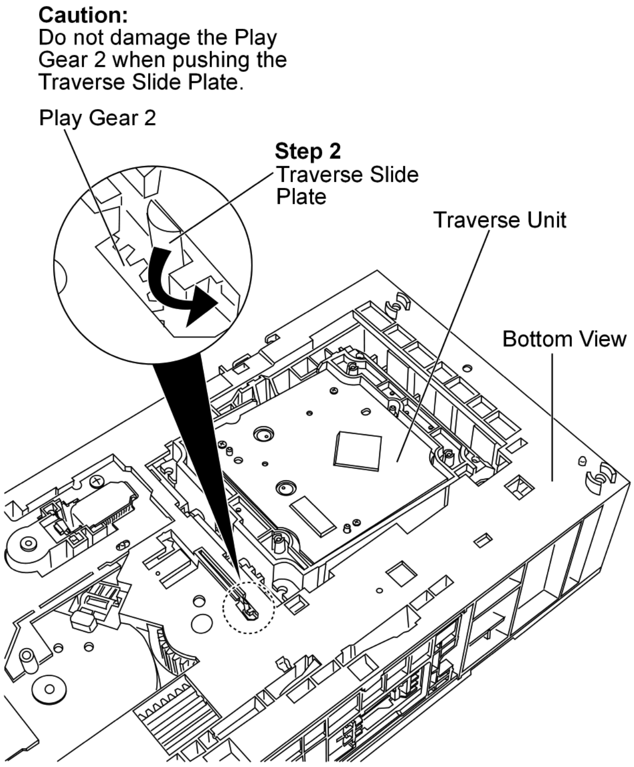
Step 2: Push the motor unit as arrow show to remove it.

7.1.7. Disassembly of Traverse Unit

Important notes: Ensure all the trays are in the “STOCK” position before proceeding to the disassemble of traverse unit. For procedures to set the trays in “STOCK” position, please refer to (5. Troubleshooting Explorer)

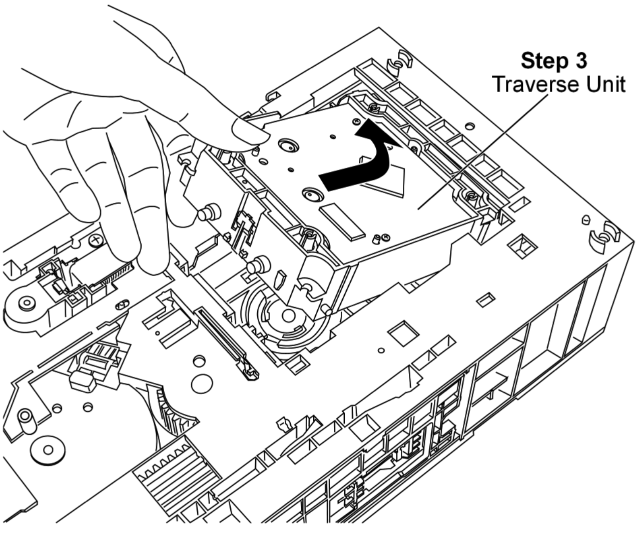

Traverse Unit
Note:
The traverse unit will move downwards stay in the “Home Position”.
②
①
Service Gear
Plunger Lever
Step 1

Step 1: Press and hold the plunger lever and rotate the gear as arrows shown until it stop.


Caution:
Do not damage the Play Gear 2 when pushing the Traverse Slide Plate.
Play Gear 2
Step 2
Traverse Slide Plate
Traverse Unit
Bottom View

Step 2: Push the traverse slide plate as arrow shown to release the traverse unit.

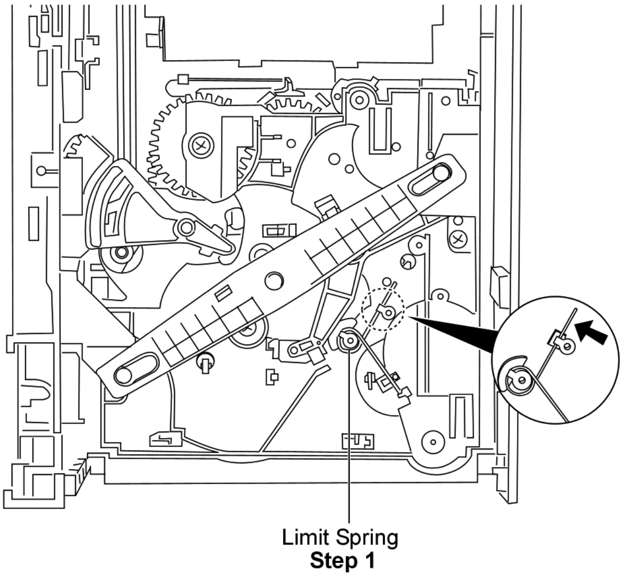
Caution: Do not exert strong force on the traverse slide plate.


Step 3
Traverse Unit

Step 3: Remove the traverse unit as arrow shown.

7.1.8. Disassembly of Limit Spring

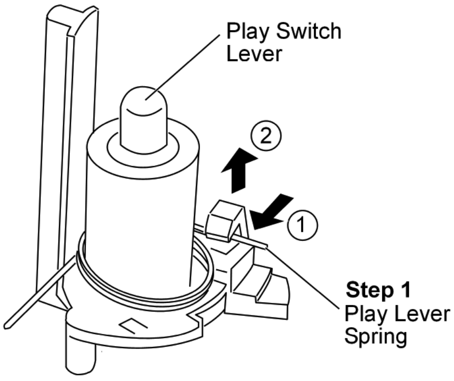
- Follow the (Step 1) to (Step 9) of item 7.1.1. (Disassembly of UD Base Assembly)


Limit Spring
Step 1

Step 1: Remove the limit spring as arrow shown.

7.1.9. Disassembly of Play Lever Spring

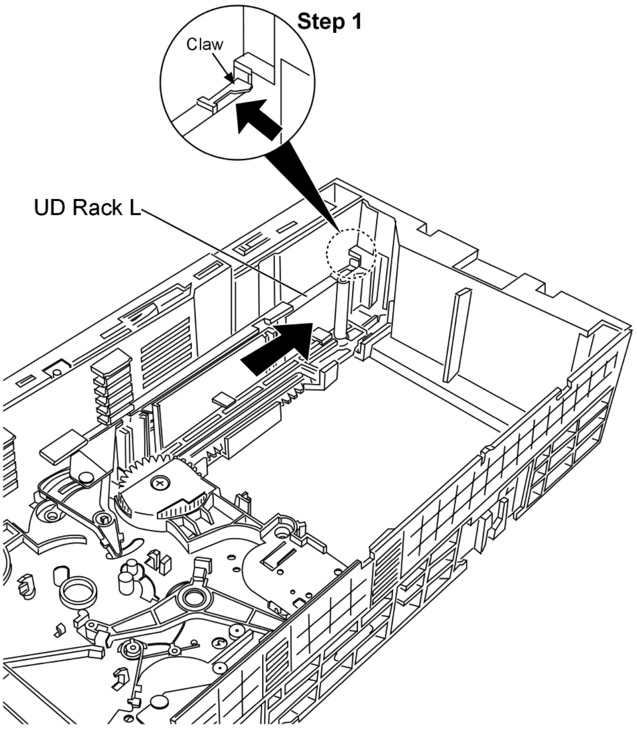
- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)
- Follow the (Step 1) to (Step 6) of item 7.1.2. (Disassembly of Disc Trays)
- Follow the (Step 1) to (Step 26) of item 7.1.3. (Disassembly of CD Loading Unit)


Play Switch Lever
②
①
Step 1
Play Lever Spring

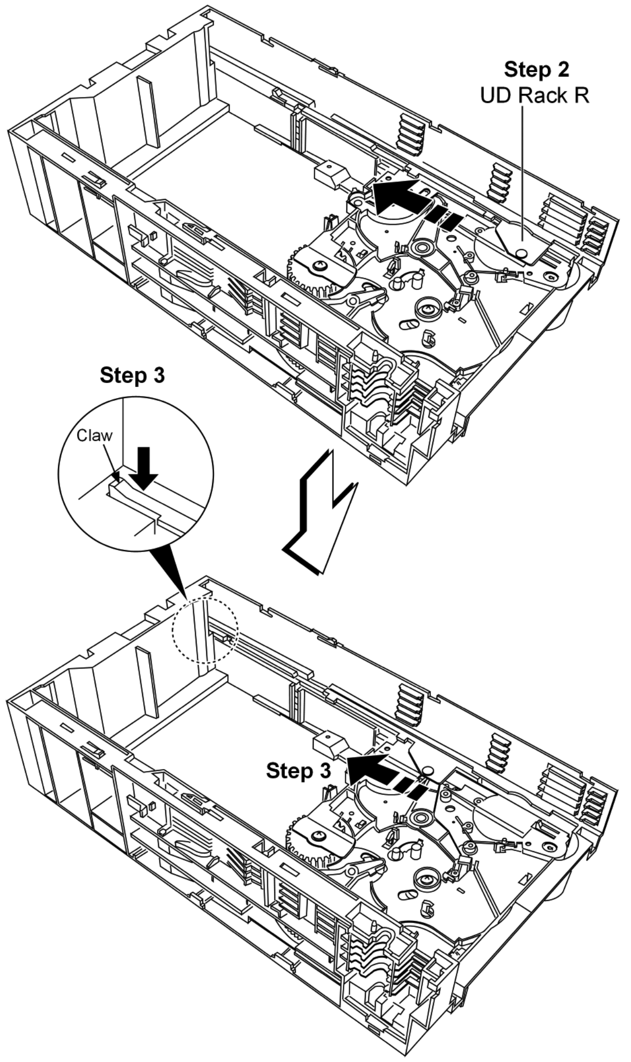
Step 1: Remove the play lever spring as arrow shown.

7.1.10. Disassembly of Pitch Plate Assembly

- Follow the (Step 1) to (Step 13) of item 7.1.1. (Disassembly of UD Base Assembly)
- Follow the (Step 1) to (Step 6) of item 7.1.2. (Disassembly of Disc Trays)
- Follow the (Step 1) to (Step 3) of item 7.1.3. (Disassembly of CD Loading Unit)

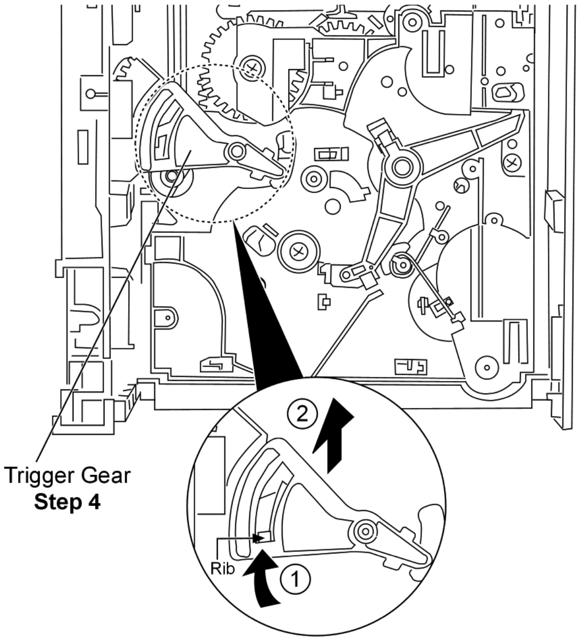

Step 1
Claw
UD Rack L

Step 1: Slide the UD rack L backwards, push the claw as arrow shown.

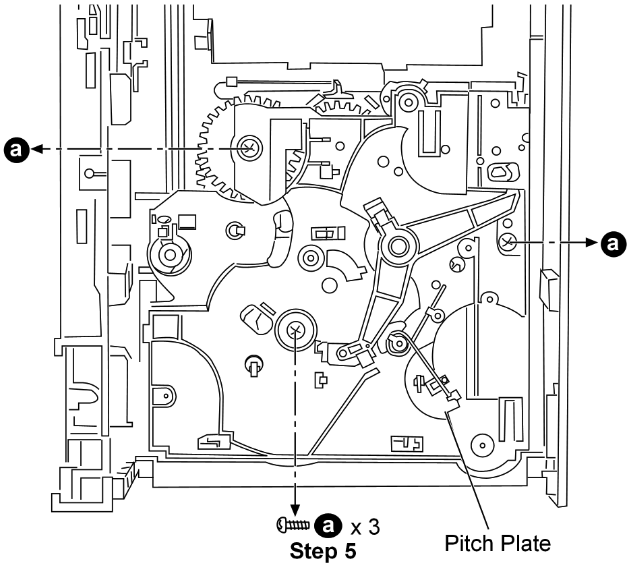

Step 2
UD Rack R
Step 3
Claw
Step 3

Step 2: Slide the UD rack R as arrow shown until it stop.

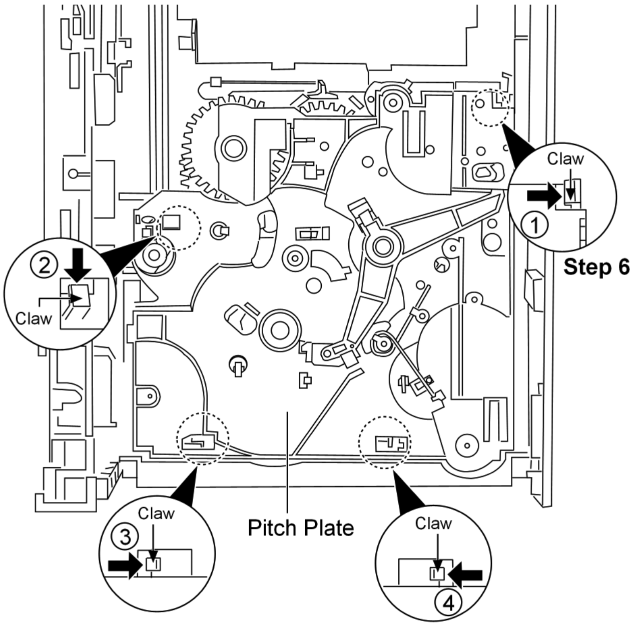
Step 3: Press the claw as arrow shown.


②
Trigger Gear
Step 4
Rib
①

Step 4: Push the claw as arrow shown, then turn the trigger gear clockwise and remove it as arrows shown.


a
a
a x 3
Step 5
Pitch Plate

Step 5: Remove 3 screws.

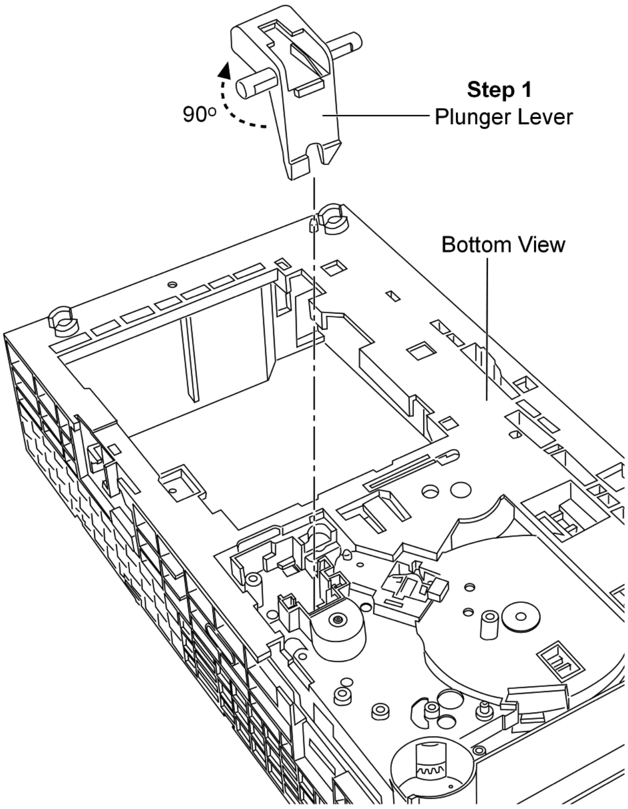

Claw
①
Step 6
②
Claw
Claw
③
Pitch Plate
Claw
④

Step 6: Release 4 claws as arrows shown in order followed by detach the pitch plate.

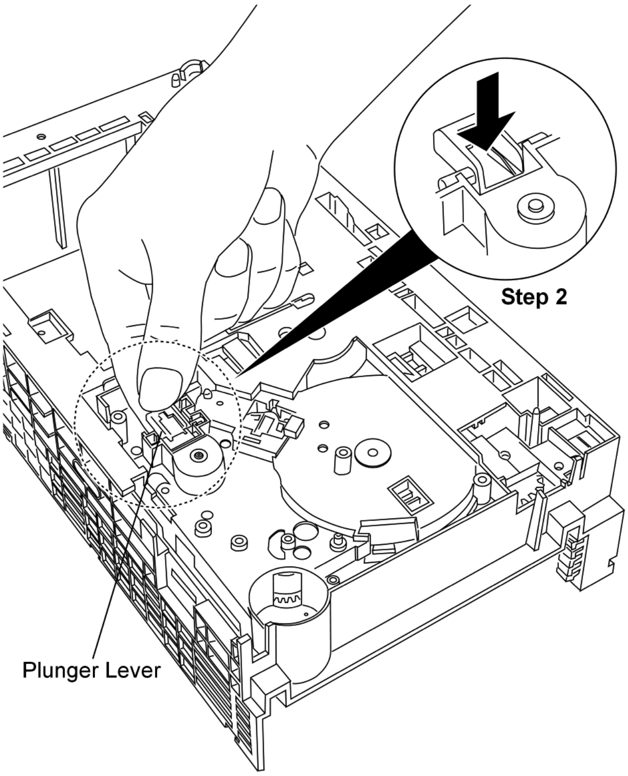
7.2. Assembling Procedure

7.2.1. Assembly of CD Loading Unit

· Assembly of Plunger Lever

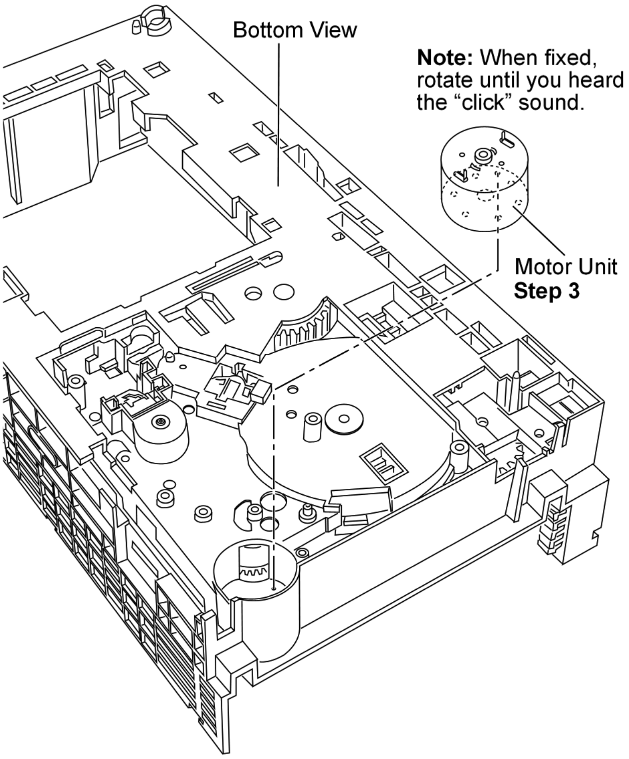

90°
Step 1
Plunger Lever
Bottom View

Step 1: Turn over the unit and install the plunger lever in 90° position.


Step 2
Plunger Lever

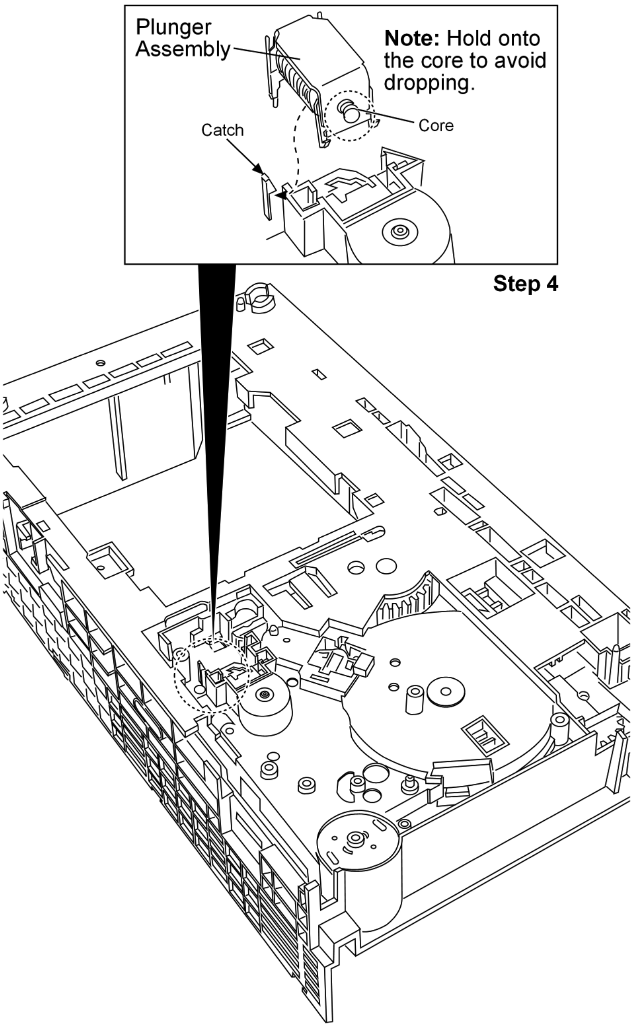
Step 2: Push in the plunger lever as arrow shown.

· Assembly of Motor Unit


Bottom View
Note: When fixed, rotate until you heard the "click" sound.
Motor Unit
Step 3

Step 3: Turn over the unit and install the motor unit properly.

· Assembly of Plunger Assembly

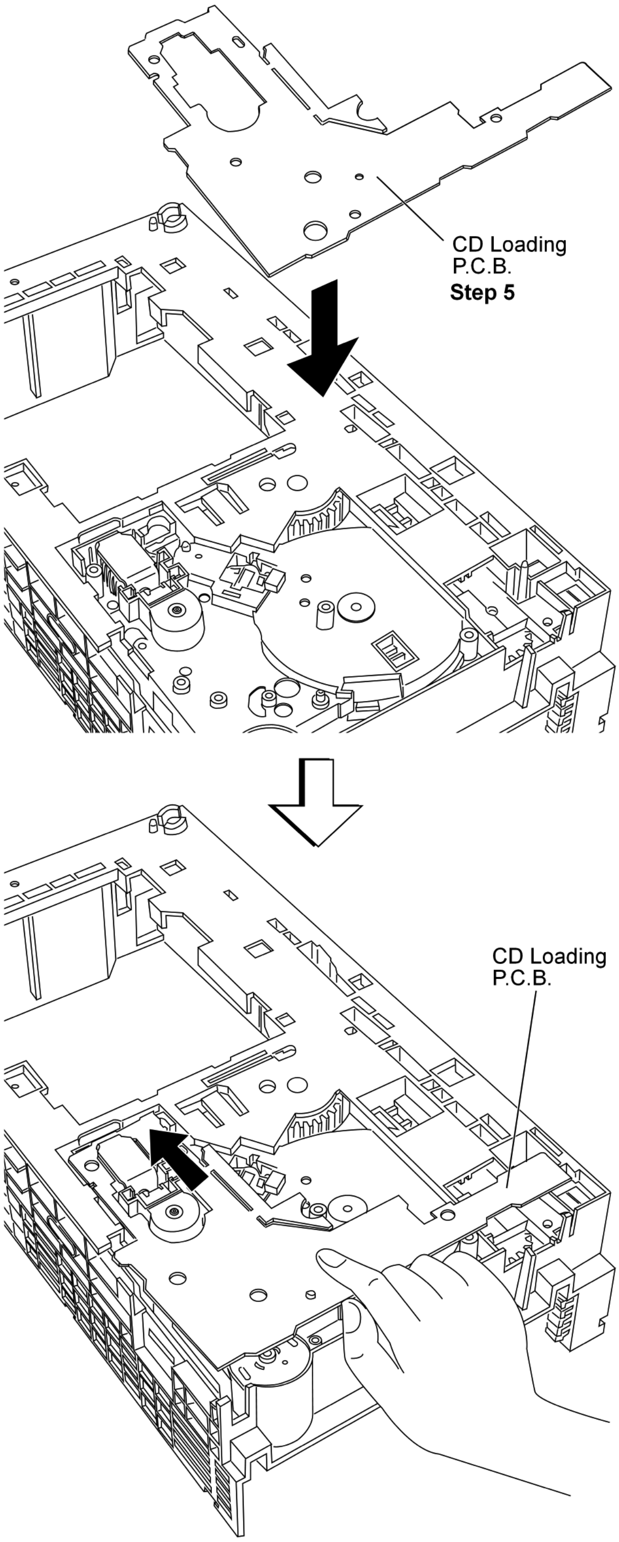

Plunger Assembly
Catch
Core

Note: Hold onto the core to avoid dropping.

Step 4

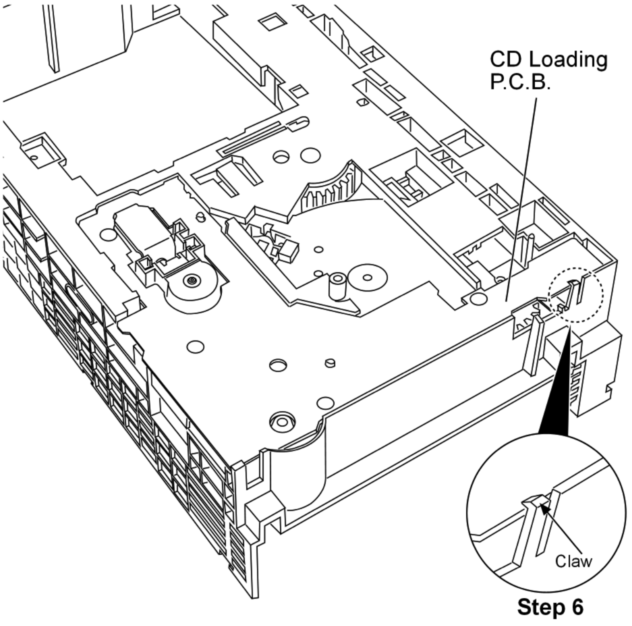
Step 4: Install the plunger assembly as arrow shown, the catch should be latched.

· Assembly of CD Loading P.C.B.

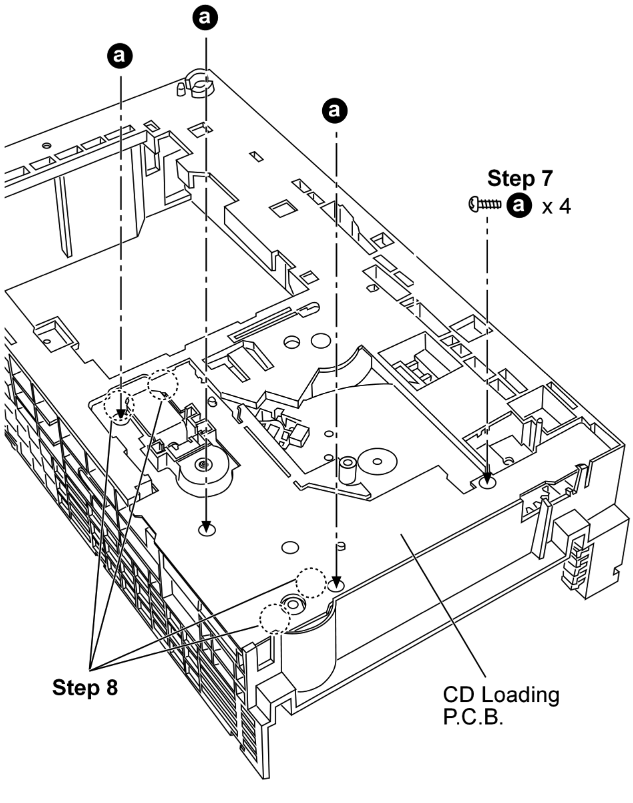

CD Loading P.C.B.
CD Loading P.C.B.

Step 5

Step 5: Install the CD Loading P.C.B. as arrows shown.


CD Loading
P.C.B.
Claw
Step 6

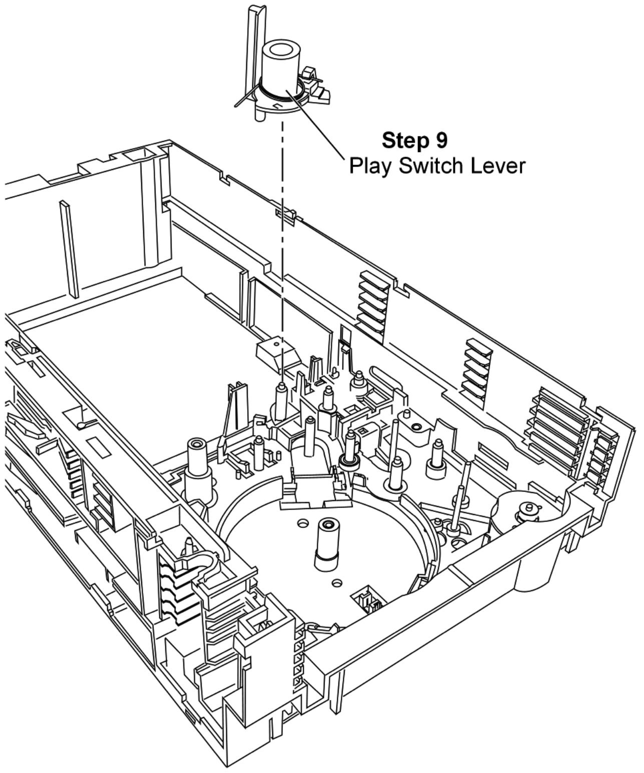
Step 6: The claw should be latched.


a
a
a
Step 7
a x 4
Step 8
CD Loading
P.C.B.

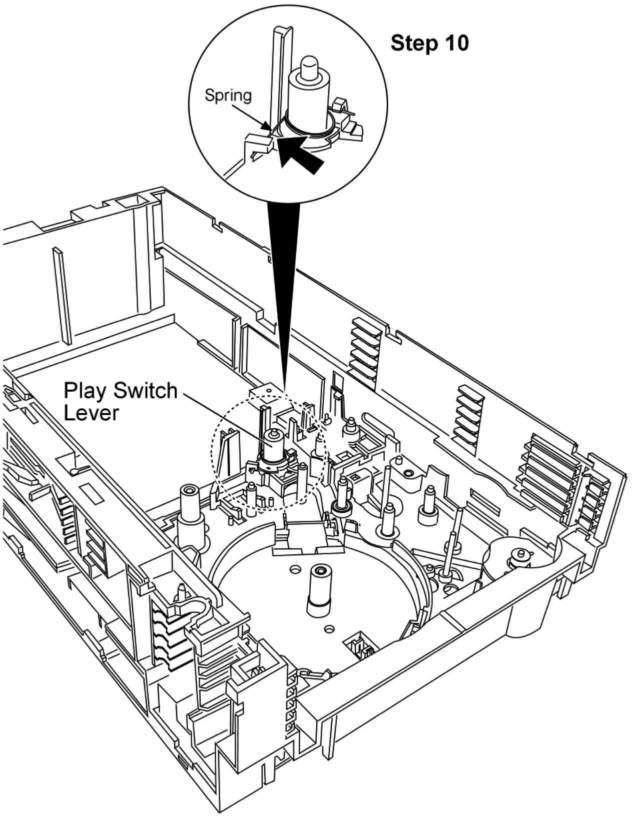
Step 7: Fix it with 4 screws.

Step 8: Solder the 4 points.

· Assembly of play swtich lever

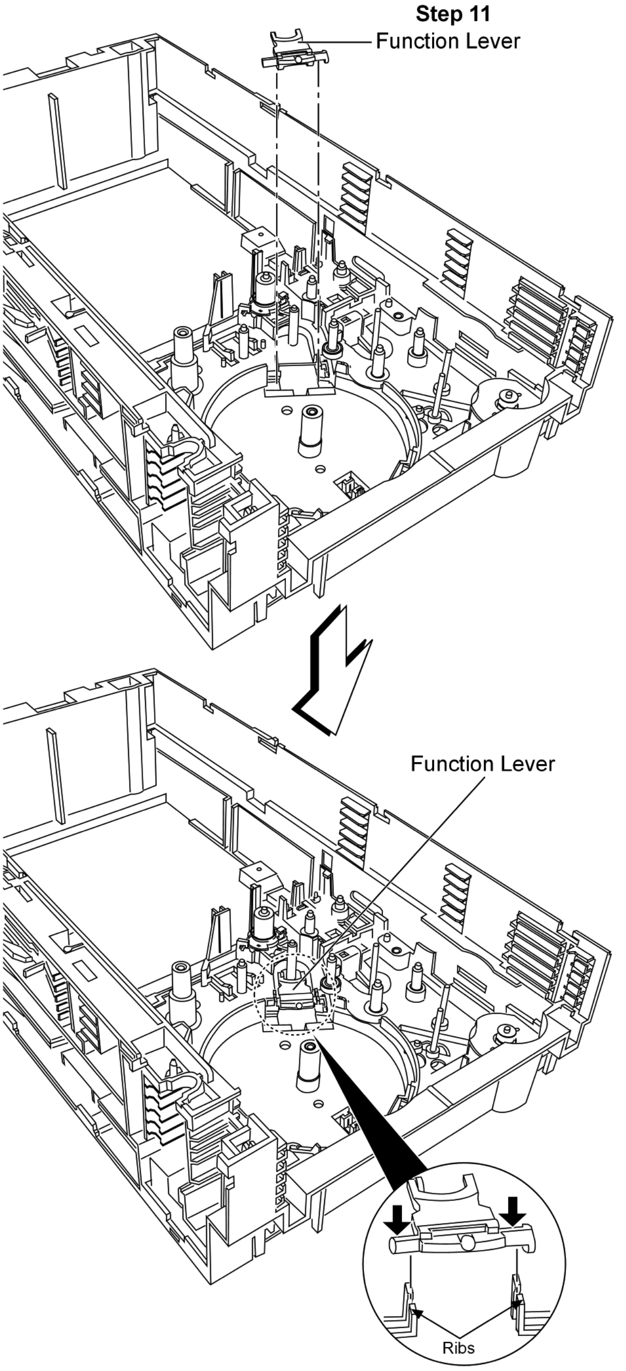

Step 9
Play Switch Lever

Step 9: Install the play switch lever.


Step 10
Spring
Play Switch
Lever

Step 10: Fix the spring below the rib as arrow shown.

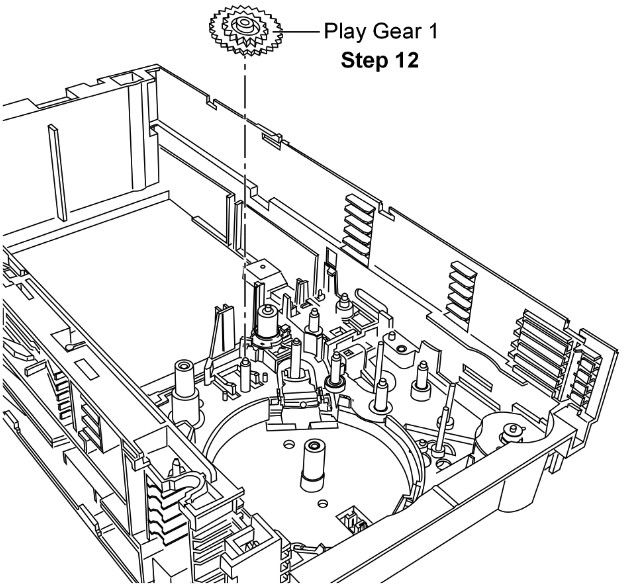
· Assembly of function lever

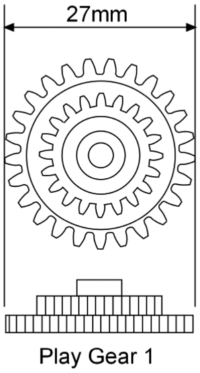

Step 11
Function Lever
Function Lever
Ribs

Step 11: Install the function lever.

Note: Ensure the function lever seats properly onto the ribs. A click sound will be heard when installing.

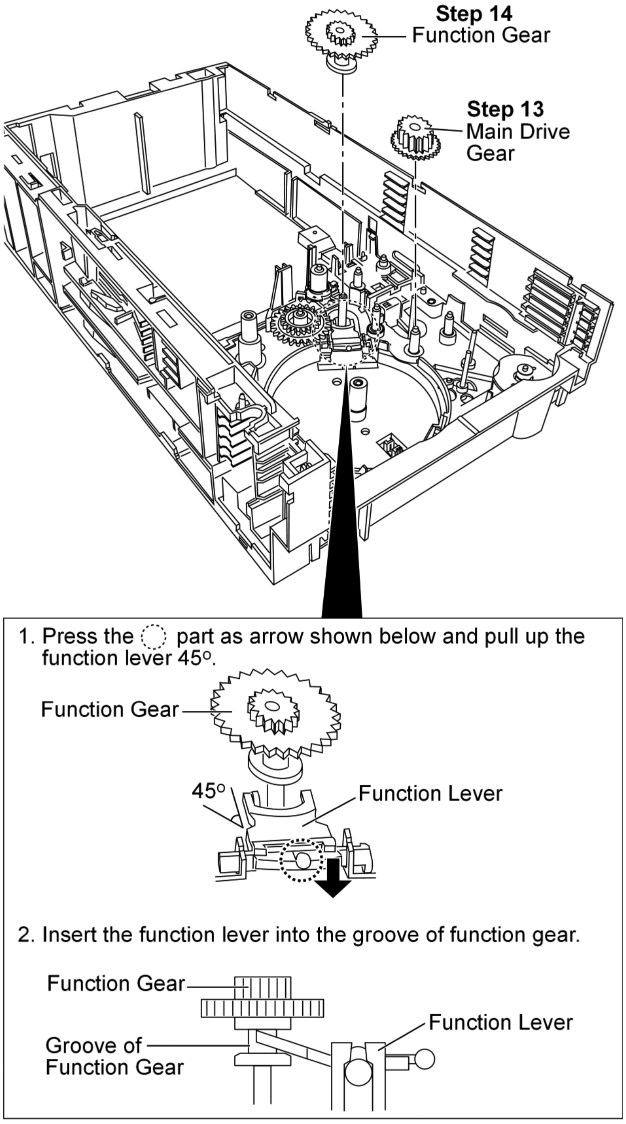
· Assembly of play gear 1


Play Gear 1
Step 12

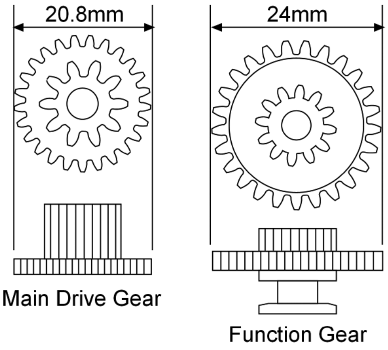

27mm
Play Gear 1

Step 12: Install the play gear 1.

· Assembly of function gear and main drive gear


Step 14
Function Gear
Step 13
Main Drive
Gear
Function Gear
45º
Function Lever
Function Gear
Groove of
Function Gear
Function Lever

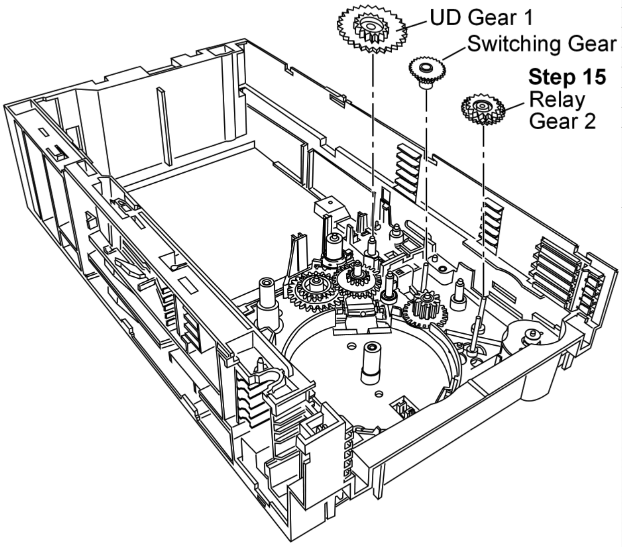
1. Press the ◌ part as arrow shown below and pull up the function lever 45º.
2. Insert the function lever into the groove of function gear.

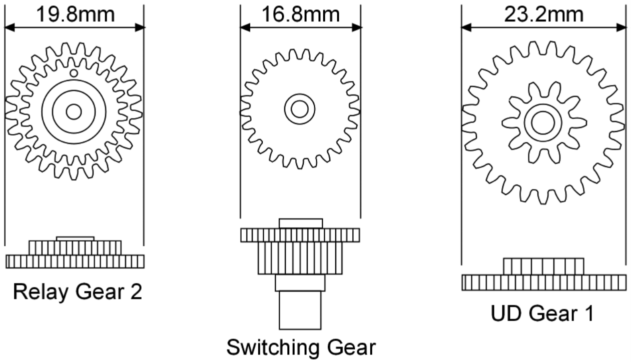

20.8mm
24mm
Main Drive Gear
Function Gear

Step 13: Install the main drive gear.

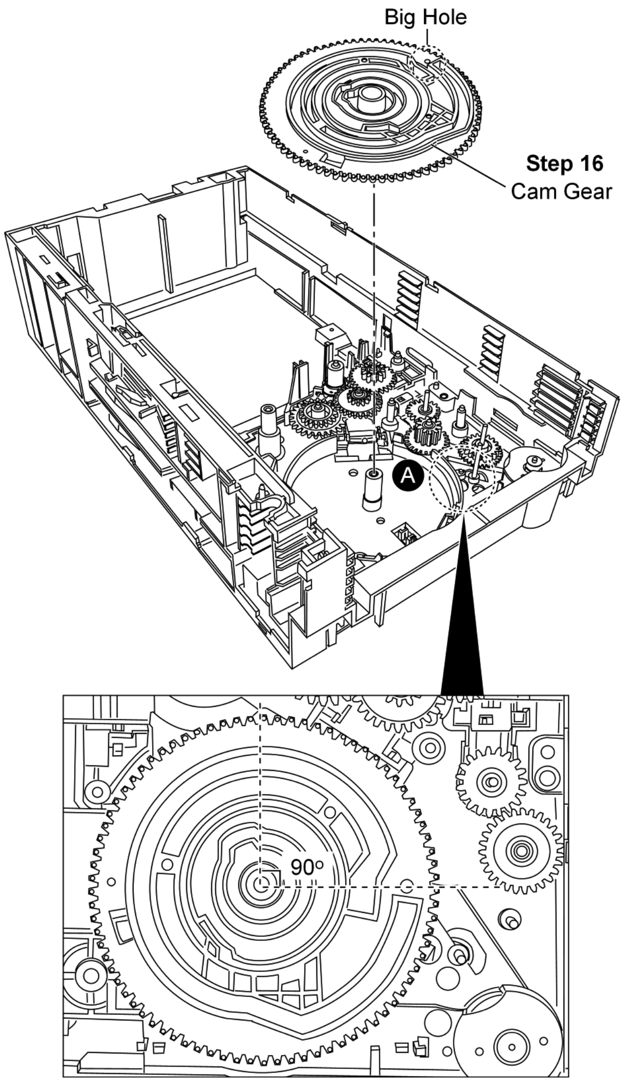
Step 14: Install the function gear.

· **Assembly of gears**

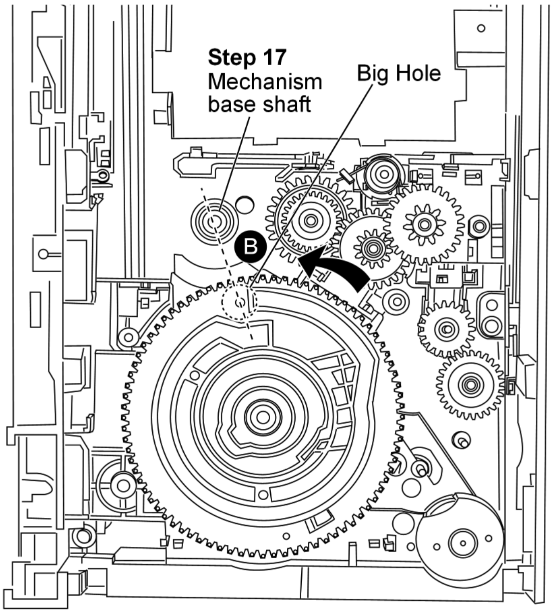

UD Gear 1
Switching Gear
Step 15
Relay
Gear 2


19.8mm
16.8mm
23.2mm
Relay Gear 2
Switching Gear
UD Gear 1

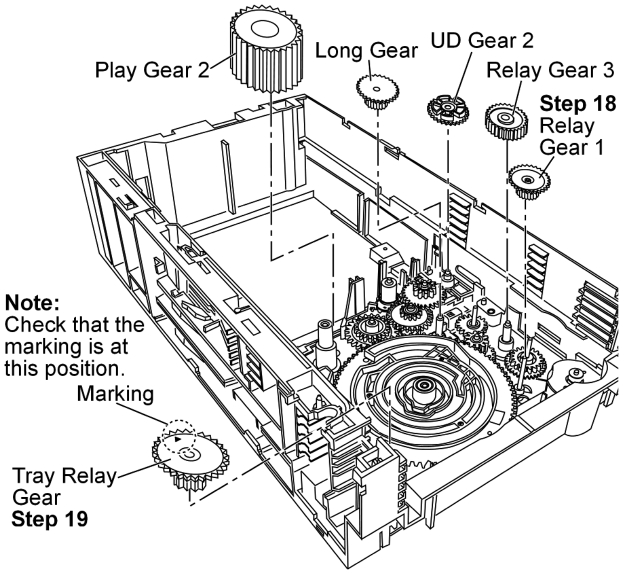
Step 15: Install the relay gear 2, switching gear and UD gear 1 respectively.


Big Hole
Step 16
Cam Gear
A
90°

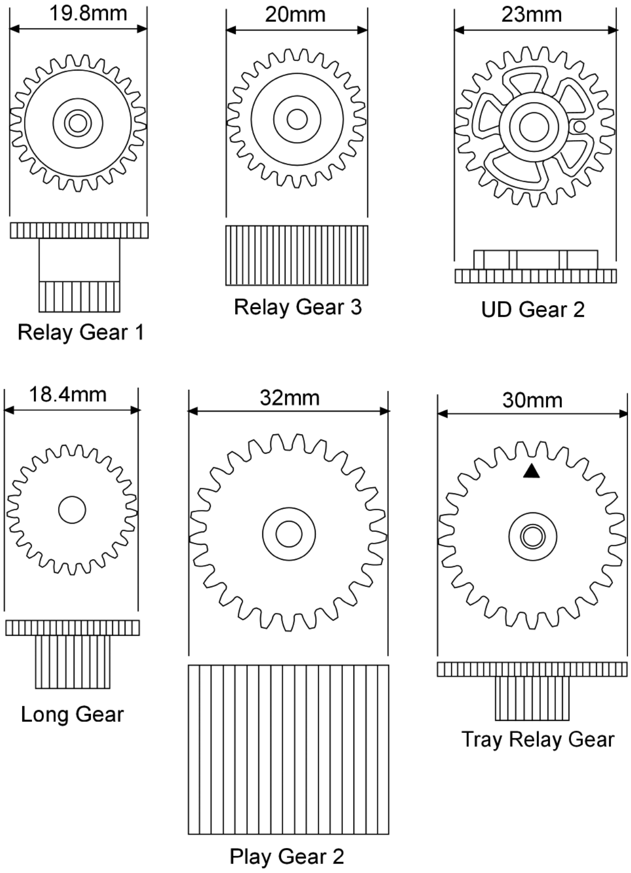
Step 16: Install the cam gear. Make sure the big hole is fix at the position (A) at 90°


Step 17
Mechanism base shaft
Big Hole
B

Step 17: Turn the cam gear anti-clockwise until the big hole stop at position (B).


Play Gear 2
Long Gear
UD Gear 2
Relay Gear 3
Step 18
Relay Gear 1
Marking
Tray Relay Gear
Step 19

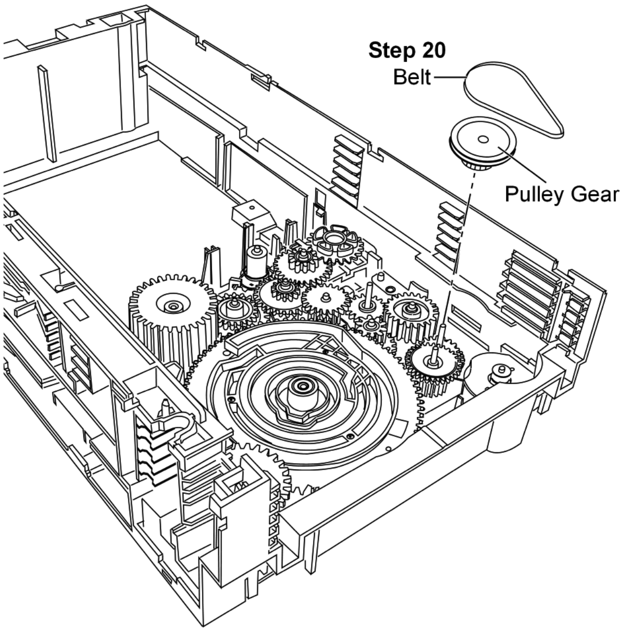
Note:
Check that the marking is at this position.

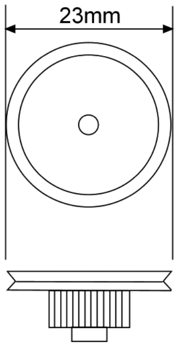

19.8mm
Relay Gear 1
20mm
Relay Gear 3
23mm
UD Gear 2
18.4mm
Long Gear
32mm
Play Gear 2
30mm
Tray Relay Gear

Step 18: Install the relay gear 1, relay gear 3, UD gear 2, long gear and play gear 2 respectively.

Step 19: Install the tray relay gear.

· **Assembly of pulley gear and belt**


Step 20
Belt
Pulley Gear

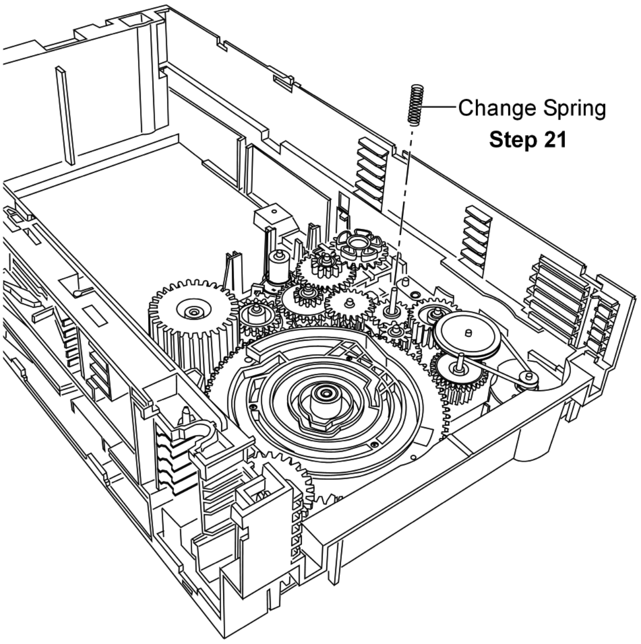


Pulley Gear

Step 20: Install the pulley gear followed by the belt.

Note: Do not apply the grease to the belt.

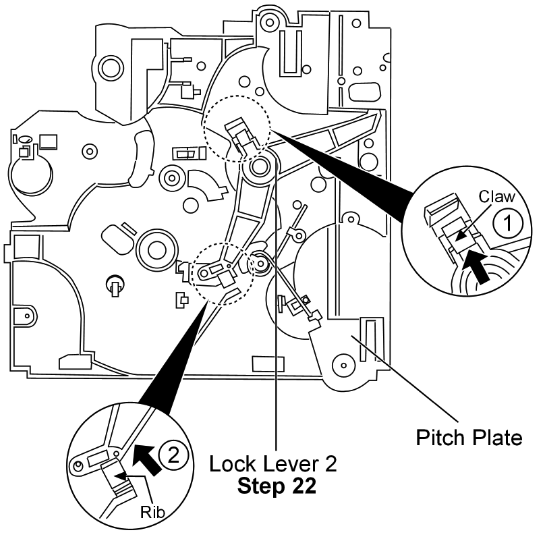
· **Assembly of change spring**


Change Spring
Step 21

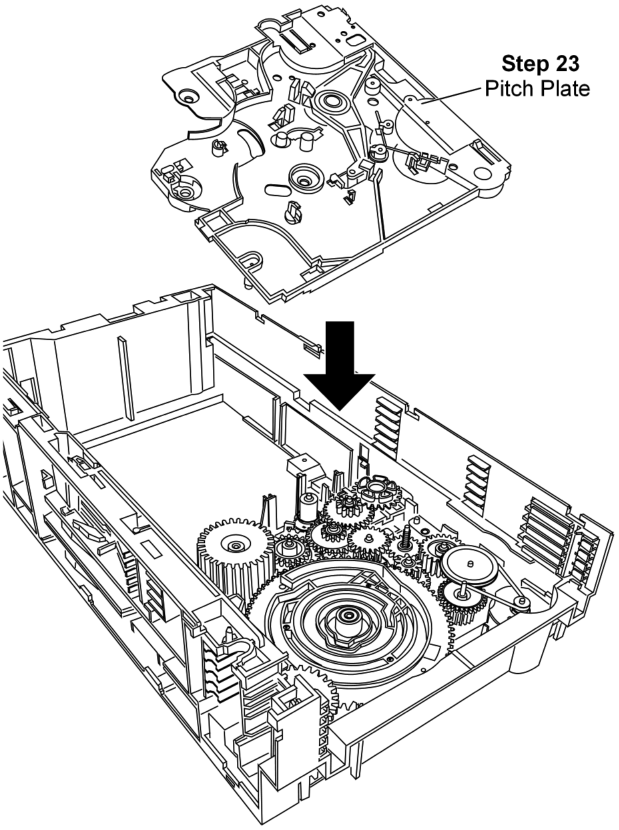
Step 21: Install the change spring.

Caution: Handle the change spring carefully, do not lose it. Ensure the change spring seats properly on the groove of long gear.

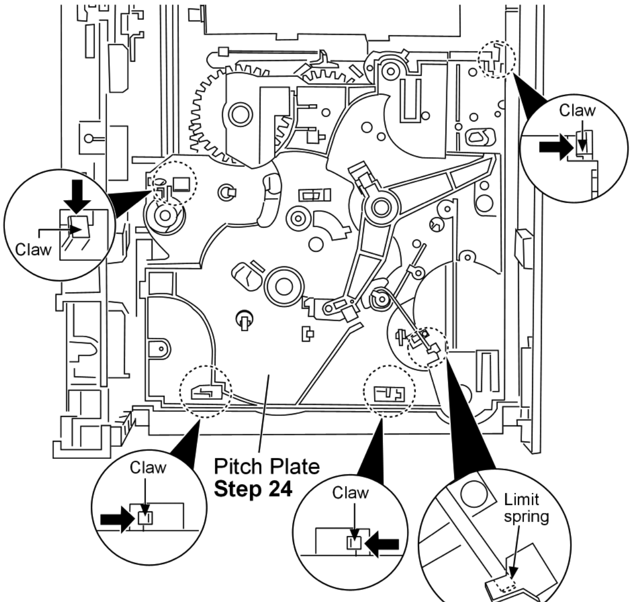
· **Assembly of pitch plate**


Claw
①
②
Rib
Lock Lever 2
Step 22
Pitch Plate

Step 22: Install the lock lever 2 as arrows whown in sequence.

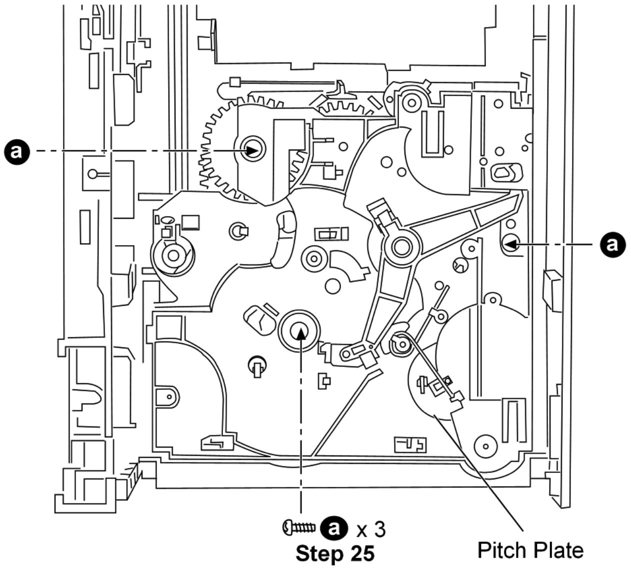

Step 23
Pitch Plate

Step 23: Install the pitch plate.


Claw
Claw
Claw
Claw
Pitch Plate
Step 24
Limit spring

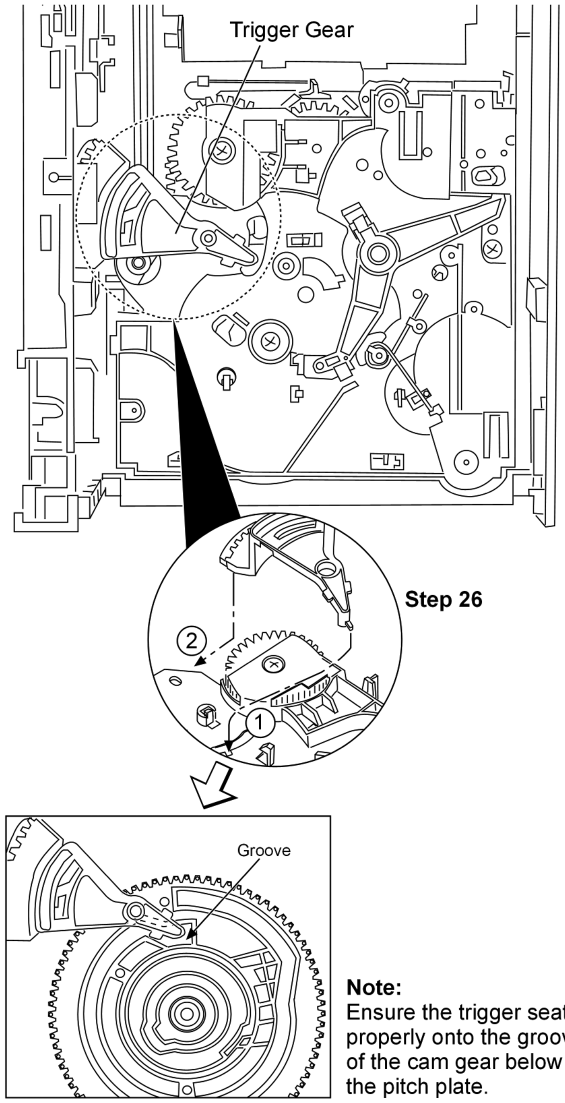
Note:
Check that the tip of the limit spring is hide under the pitch plate.

Step 24: The 4 claws should be latched properly.


a
a
a x 3
Step 25
Pitch Plate

Step 25: Fix it with 3 screws

· Assembly of trigger gear

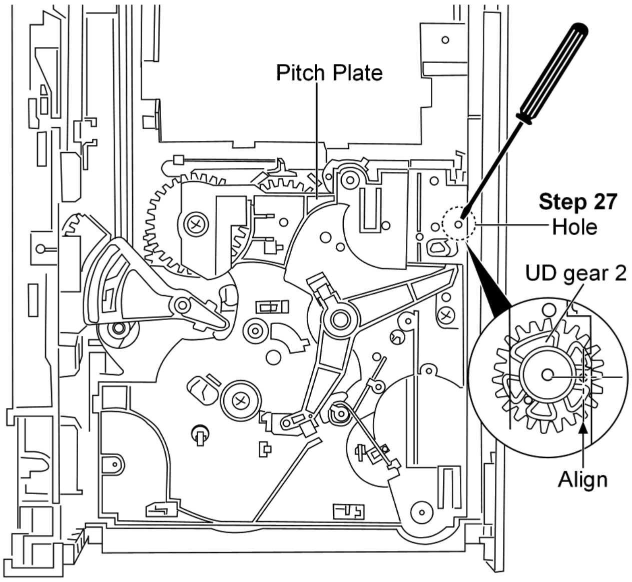

Trigger Gear
Step 26
2
1
Groove

Note:
Ensure the trigger seats properly onto the groove of the cam gear below the pitch plate.

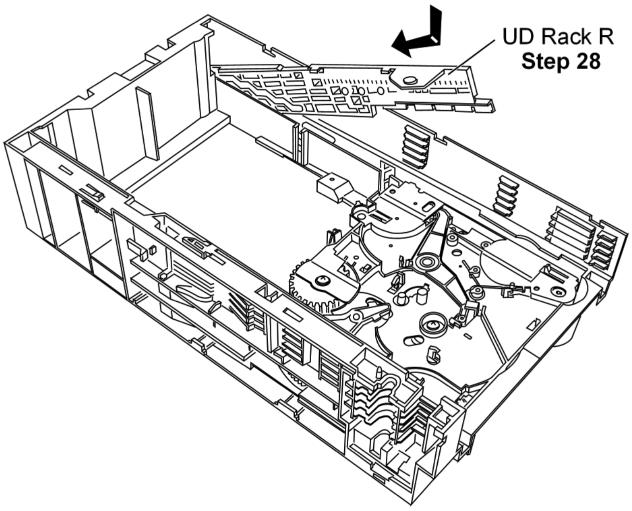
Step 26: Install the trigger gear in sequence.

Note: Ensure the trigger seats properly onto the groove (cam gear).

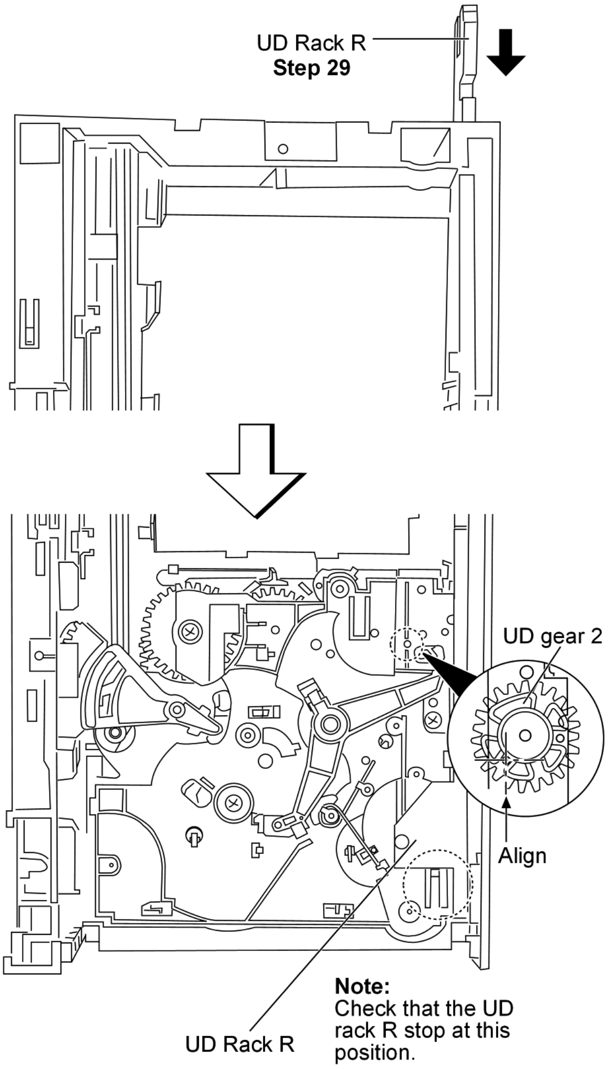
· Assembly of UD rack R


Pitch Plate
Step 27
Hole
UD gear 2
Align

Step 27: Use the screwdriver to turn the hole on the UD gear 2 align with the pitch plate hole.

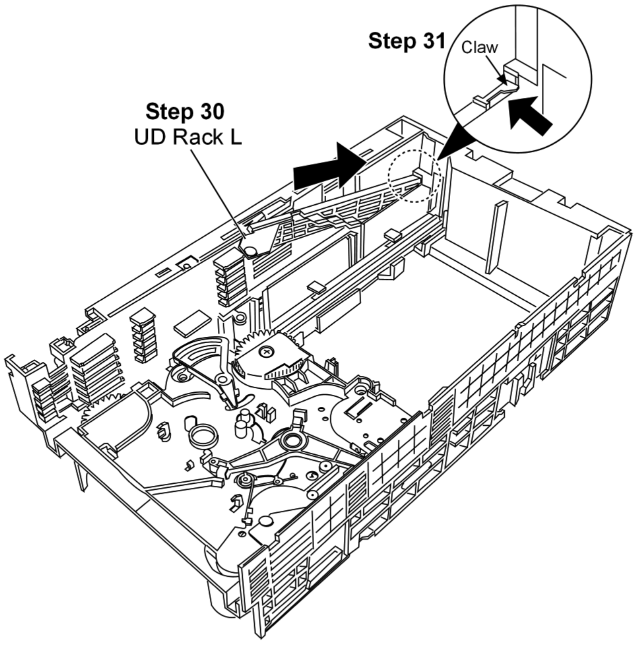

UD Rack R
Step 28

Step 28: Insert the UD rack R as arrow shown.


UD Rack R
Step 29
UD gear 2
Align
UD Rack R
Note:
Check that the UD rack R stop at this position.

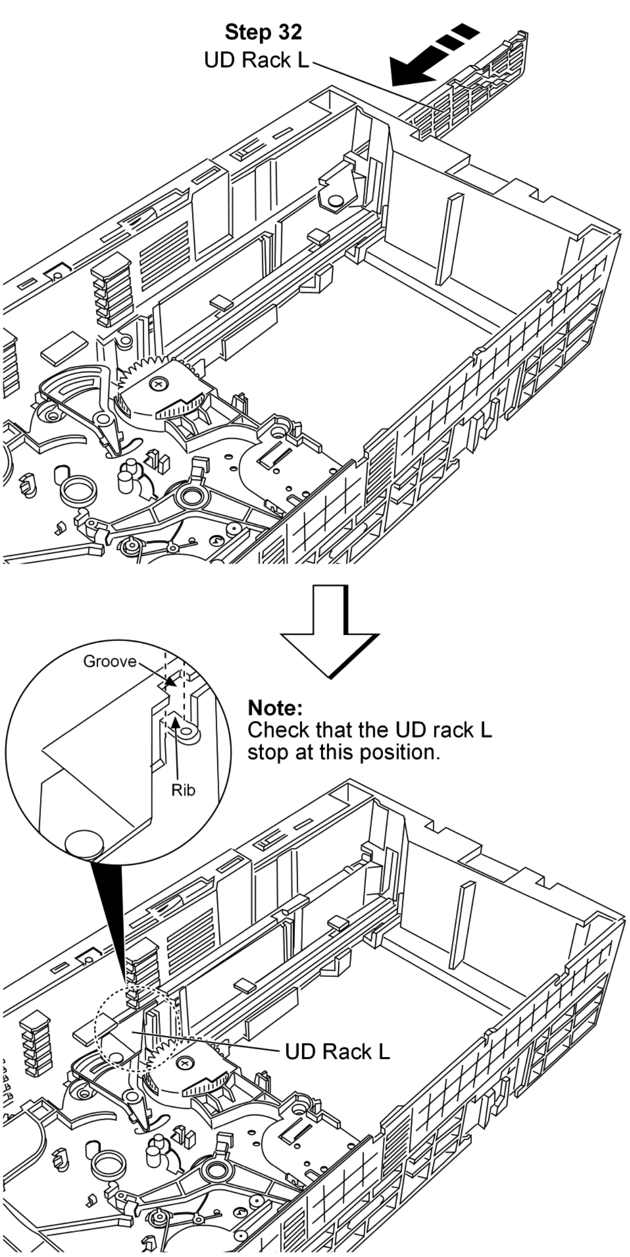
Step 29: Push the UD rack R as arrow shown.

· Assembly of UD rack L


Step 31
Claw
Step 30
UD Rack L

Step 30: Insert the UD rack L as arrow shown.

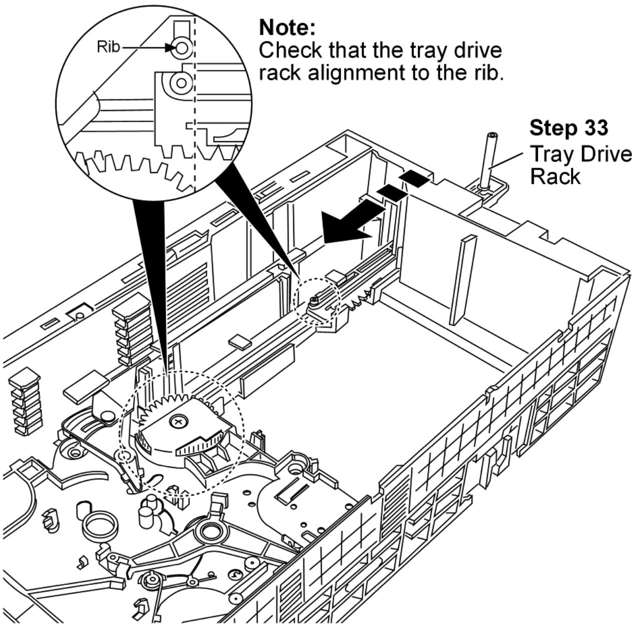
Step 31: Push the claw as arrow shown.


Step 32
UD Rack L
Groove
Rib
UD Rack L

Note:
Check that the UD rack L stop at this position.

Step 32: Pull the UD rack L as arrow shown.

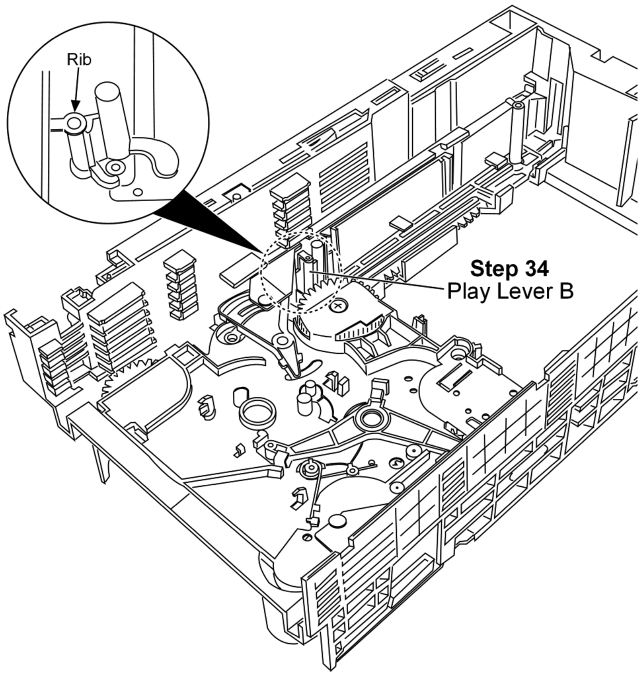
· Assembly of tray drive rack


Rib
Step 33
Tray Drive Rack

Note:
Check that the tray drive rack alignment to the rib.

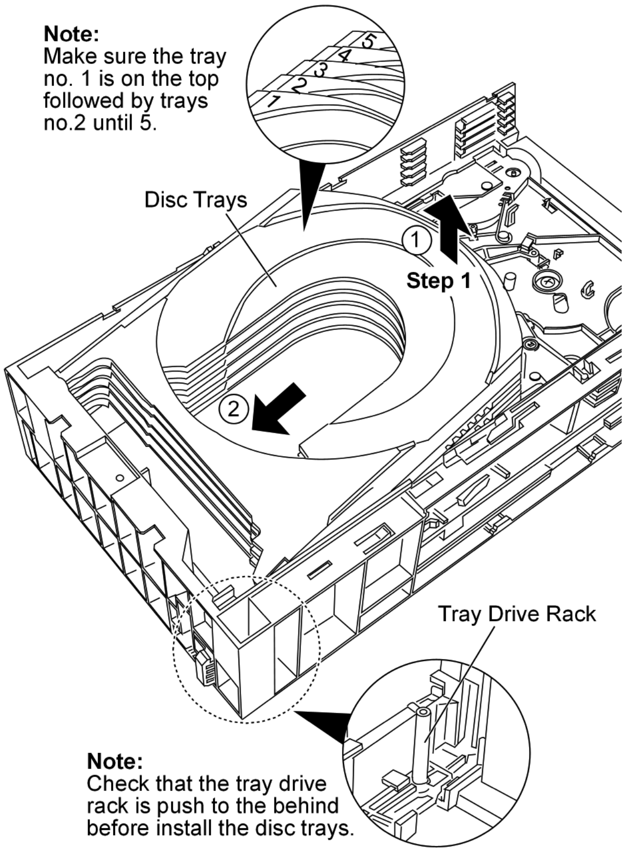
Step 33: Install the tray drive rack as arrow shown.

· Assembly of play lever B


Rib
Step 34
Play Lever B

Step 34: Install the play lever B below the rib.

7.2.2. Assembly of Disc Trays

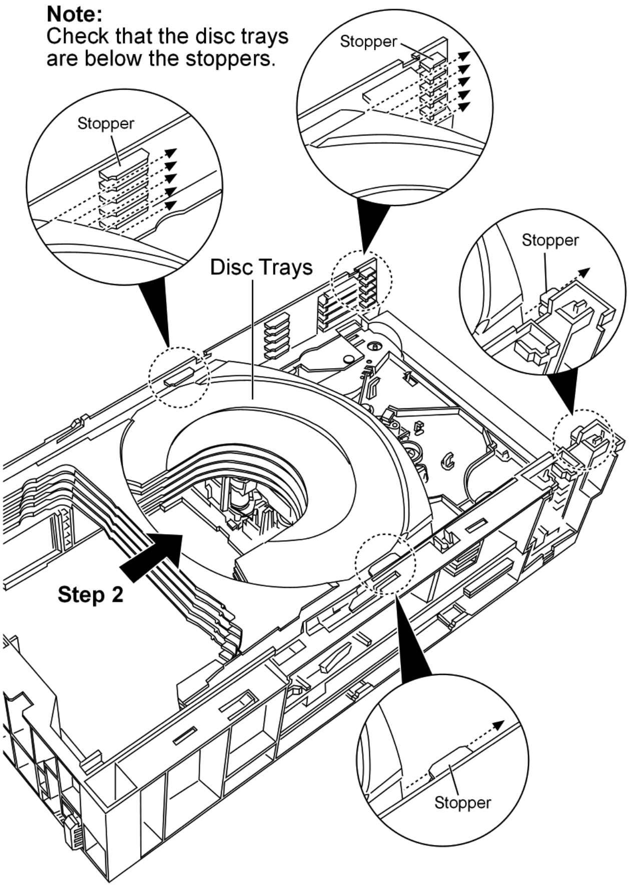


Note:
Make sure the tray no. 1 is on the top followed by trays no.2 until 5.

5
4
3
2
1
Disc Trays
①
Step 1
②
Tray Drive Rack

Note:
Check that the tray drive rack is push to the behind before install the disc trays.

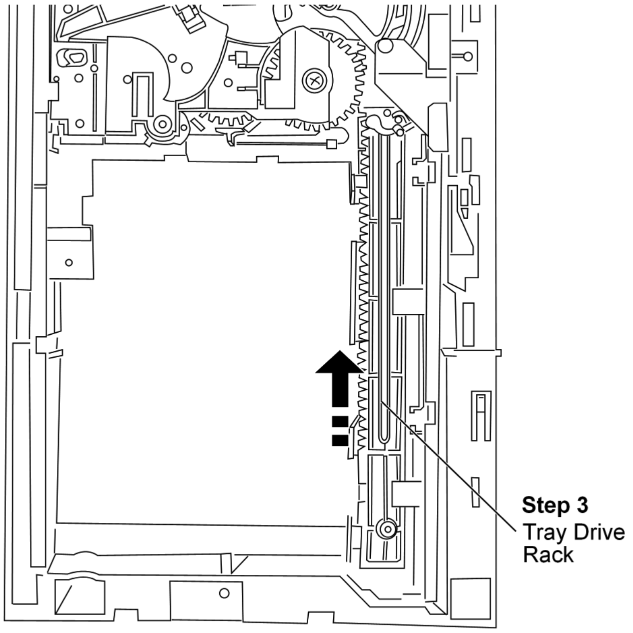
Step 1: Tilt and fix the 5 disc trays as arrows shown.



Note:
Check that the disc trays are below the stoppers.

Stopper
Stopper
Disc Trays
Stopper
Step 2
Stopper

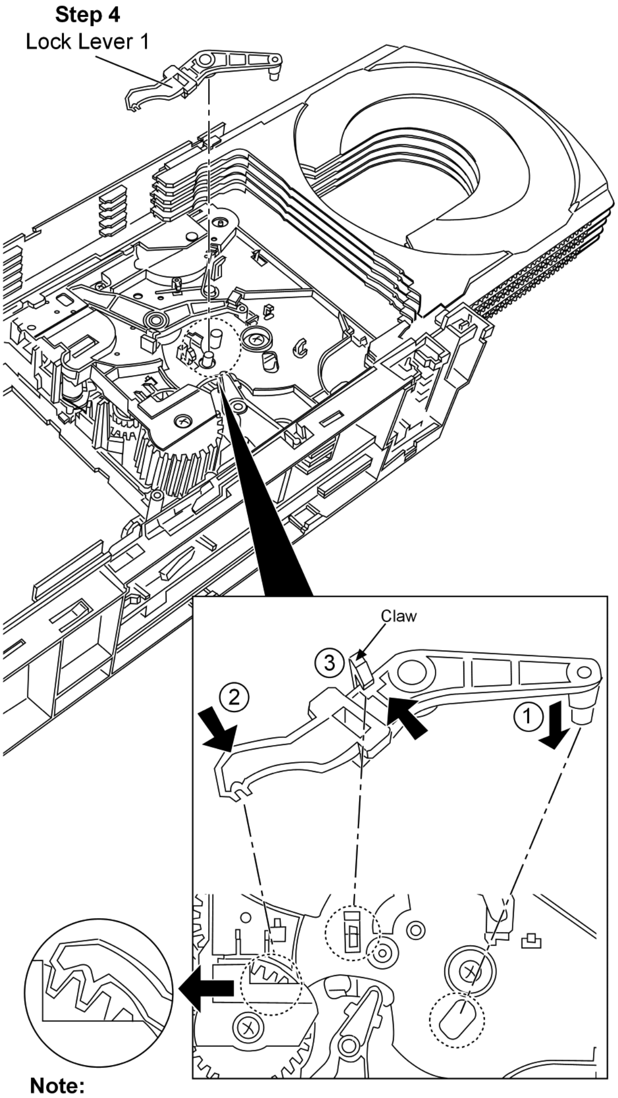
Step 2: Push the 5 disc trays as arrow shown until it stop.



Step 3
Tray Drive Rack

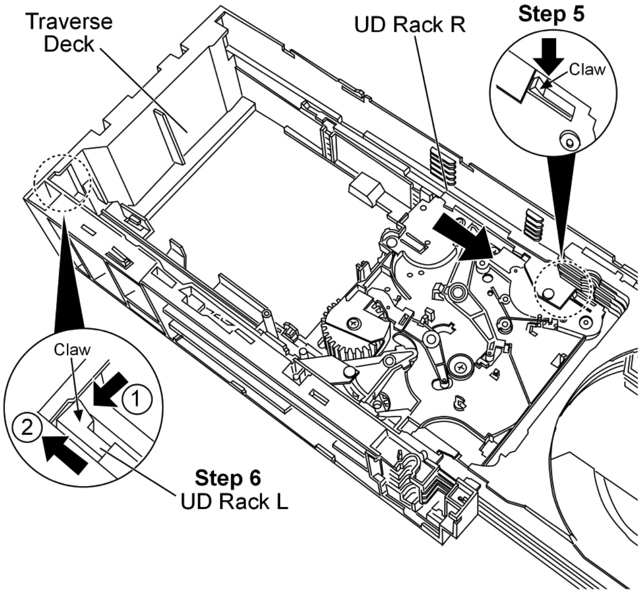
Step 3: Push the tray drive rack as arrow shown until it stop.

· **Assembly of lock lever 1**


Step 4
Lock Lever 1
Claw
③
②
①

Note:
Check that the lock lever 1
is alignment to the gear.

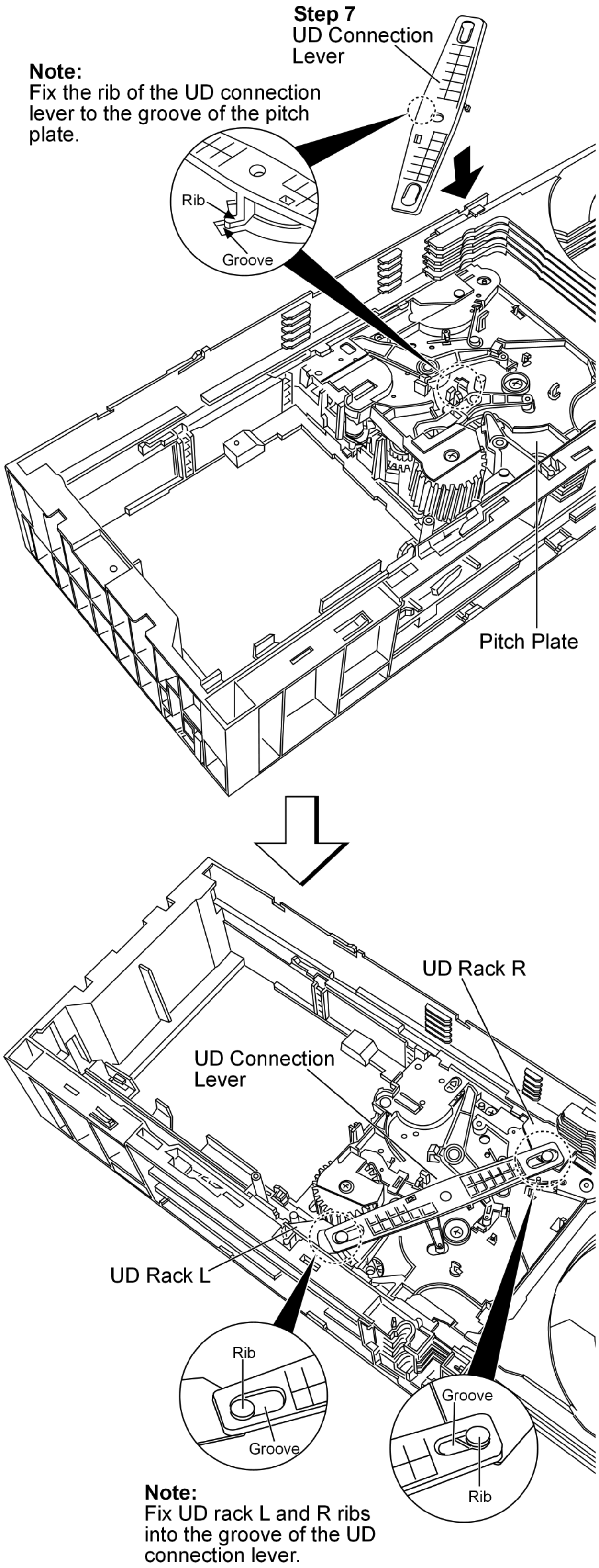
Step 4: Fix the lock lever 1 onto the pitch plate as arrow shown in sequence.


Traverse
Deck
UD Rack R
Step 5
Claw
Claw
①
②
Step 6
UD Rack L

Step 5: Press and hold the claw at the pitch plate then push the UD rack R as arrows shown.

Step 6: Push the claw and slide the UD rack L as arrows shown.

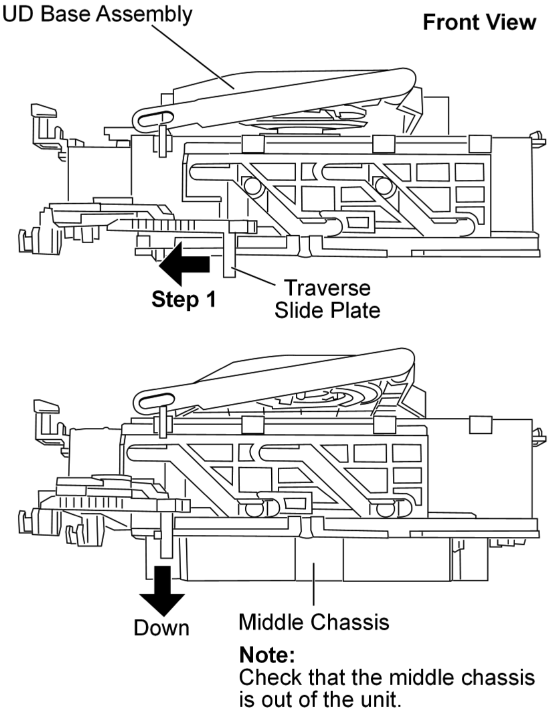
· **Assembly of UD connection lever**


Step 7
UD Connection Lever
Note:
Fix the rib of the UD connection lever to the groove of the pitch plate.
Rib
Groove
Pitch Plate
UD Rack R
UD Connection Lever
UD Rack L
Rib
Groove
Groove
Rib
Note:
Fix UD rack L and R ribs into the groove of the UD connection lever.

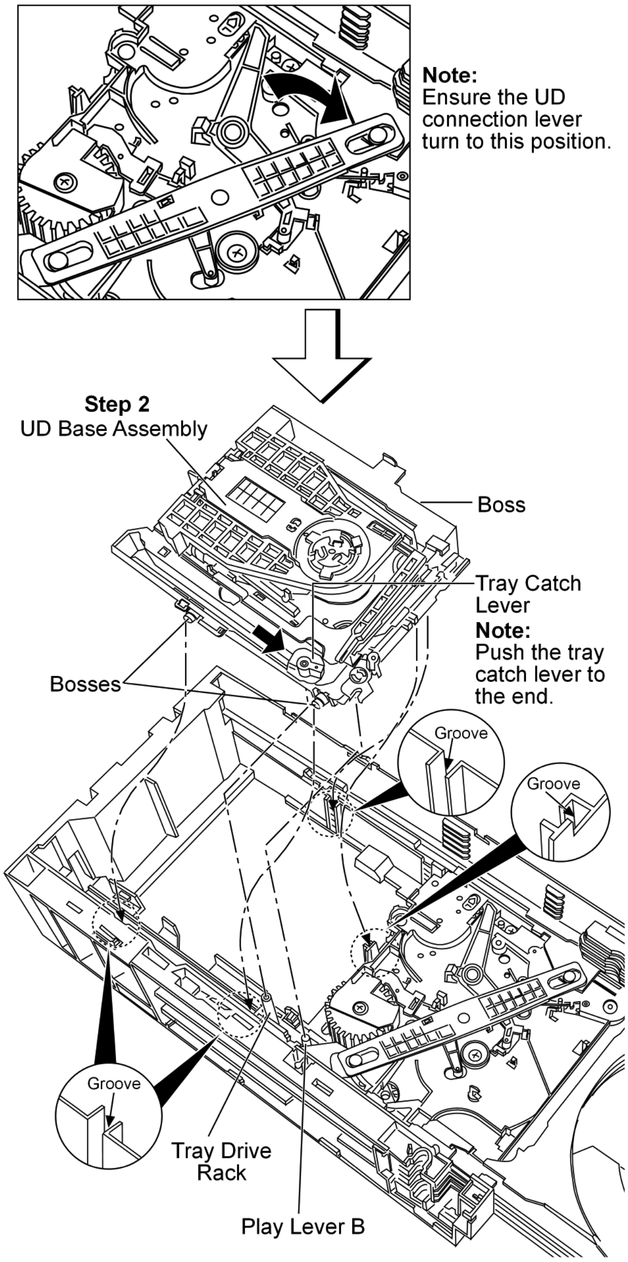
Step 7: Install the UD connection lever.

- Follow the (Step 1) to (Step 12) of item 7.2.3. (Assembly of UD Base Assembly)

7.2.3. Assembly of UD Base Assembly


UD Base Assembly
Front View
Step 1
Traverse Slide Plate
Down
Middle Chassis
Note:
Check that the middle chassis is out of the unit.

Step 1: Push the traverse slide plate as arrow shown.



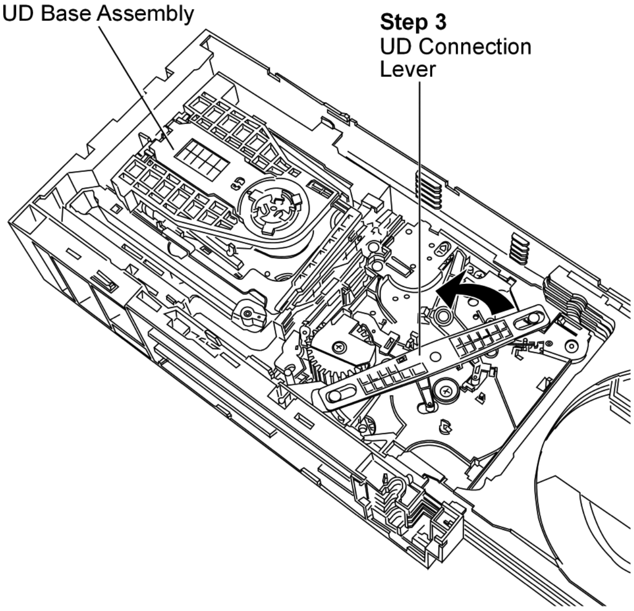
Note: Ensure the UD connection lever turn to this position.

Note: Push the tray catch lever to the end.

Step 2
UD Base Assembly
Boss
Tray Catch Lever
Bosses
Groove
Groove
Groove
Tray Drive Rack
Play Lever B

Step 2: Install the UD base assembly.

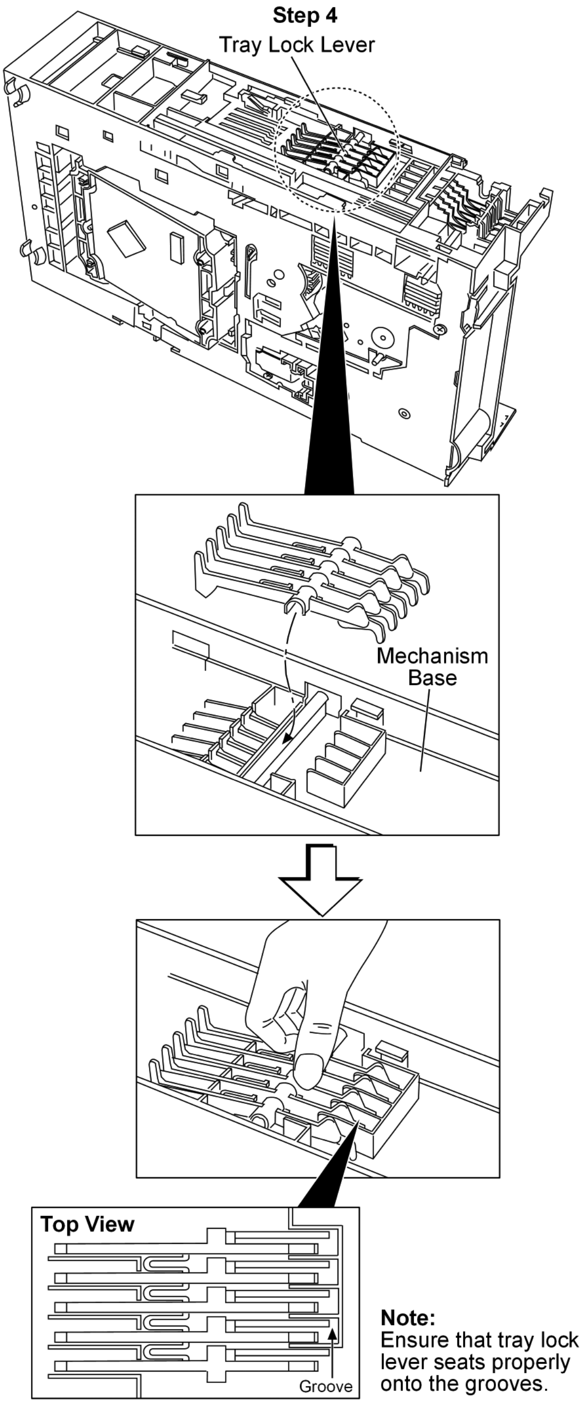
Note: Ensure the UD base assembly seats properly into the grooves and engage with the play lever B and tray drive rack.



UD Base Assembly
Step 3
UD Connection Lever

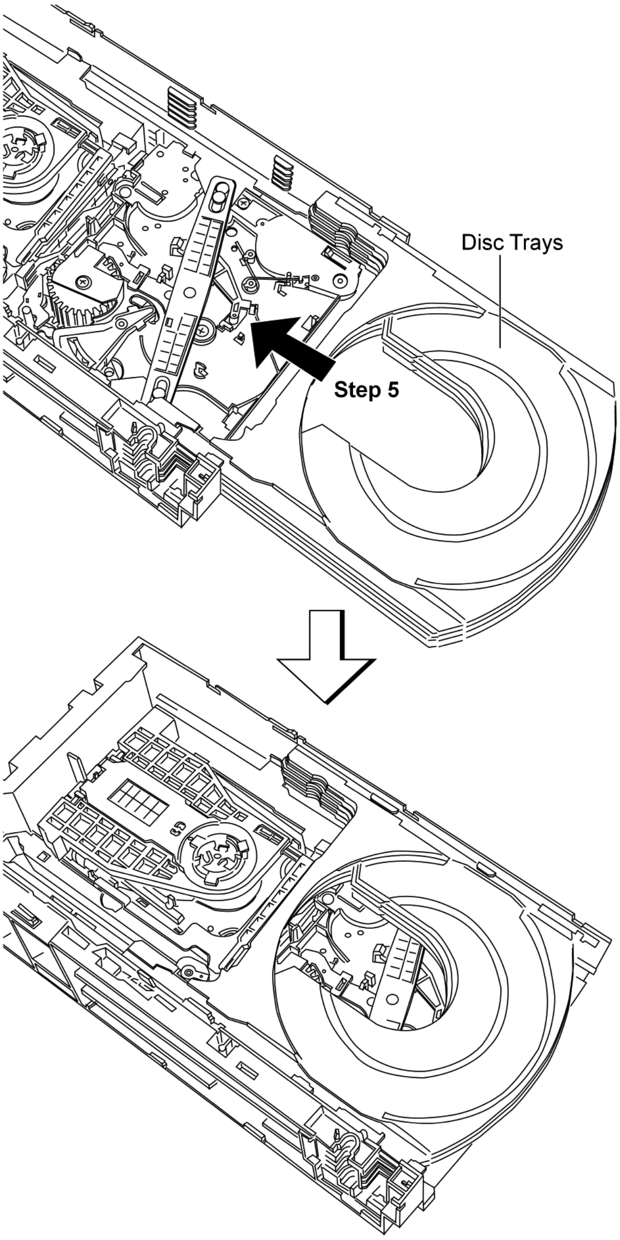
Step 3: Turn the UD connection lever anti-clockwise, the UD base assembly will move downwards.

Note: When the UD connection lever is turn and the UD base assembly did not move downwards, check for step 1 to step 3 again.


Step 4
Tray Lock Lever
Mechanism Base
Top View
Groove

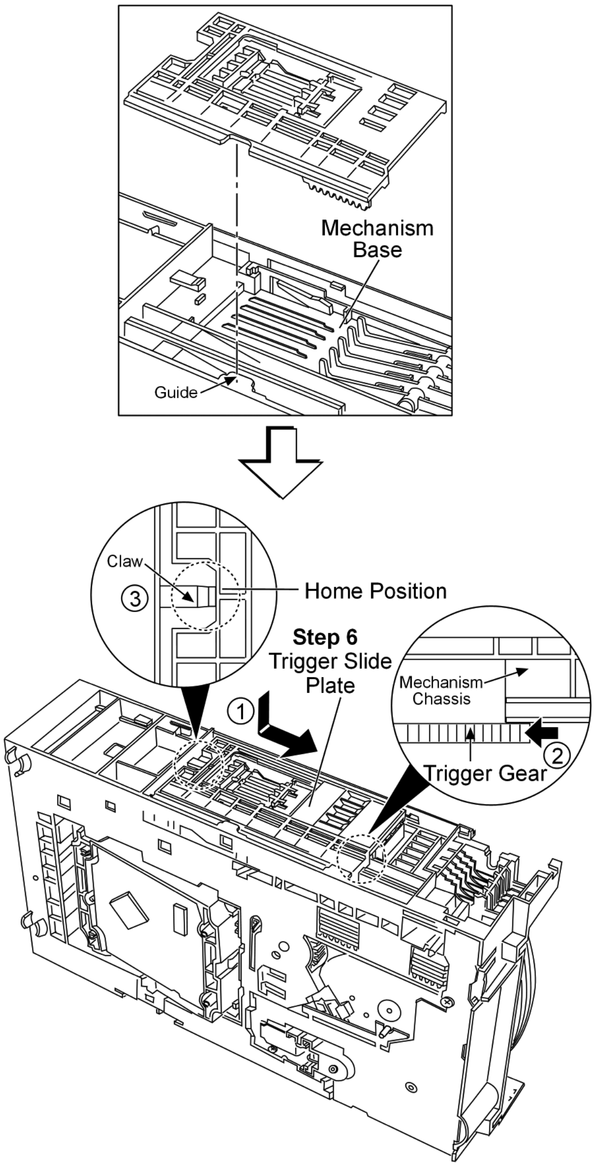
Note:
Ensure that tray lock lever seats properly onto the grooves.

Step 4: Install the tray lock lever to the mechanism base and push the tray lock lever with a hand to fix it.

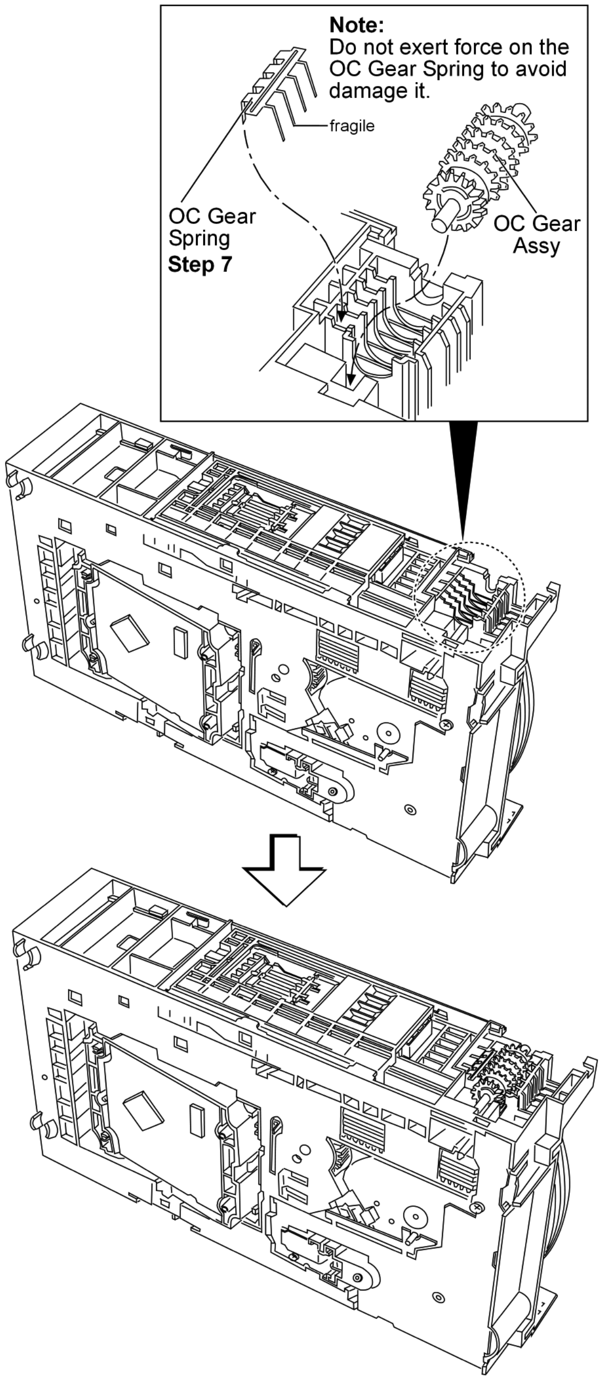

Disc Trays
Step 5

Step 5: Push the disc trays back to the unit as arrow shown.

· **Assembly of Trigger Slide Plate**

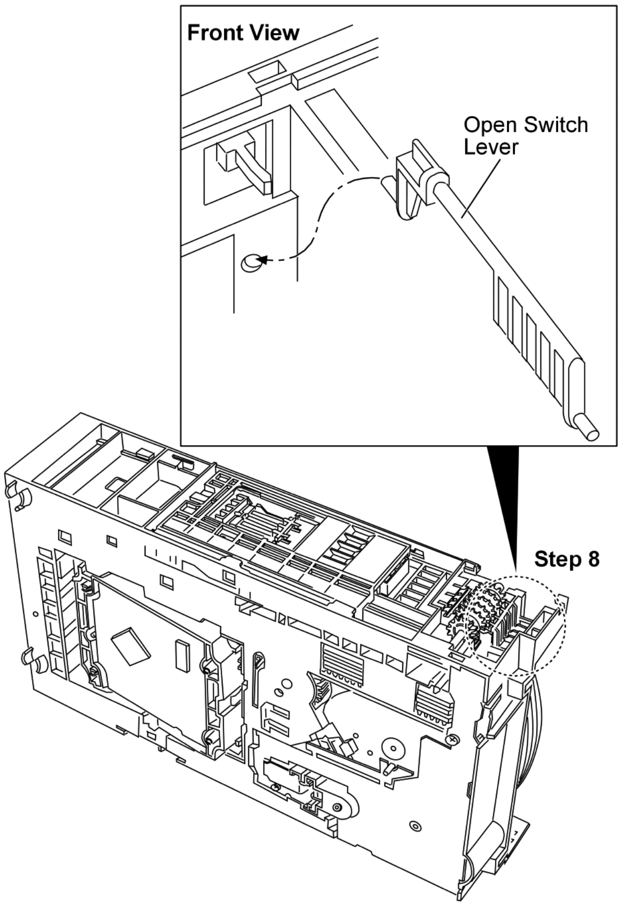

Mechanism
Base
Guide
Claw
③
Home Position
Step 6
Trigger Slide
Plate
①
Mechanism
Chassis
②
Trigger Gear

Step 6: Install the trigger slide plate, push forwards and push the trigger gear as arrows shown until locked by the claw.

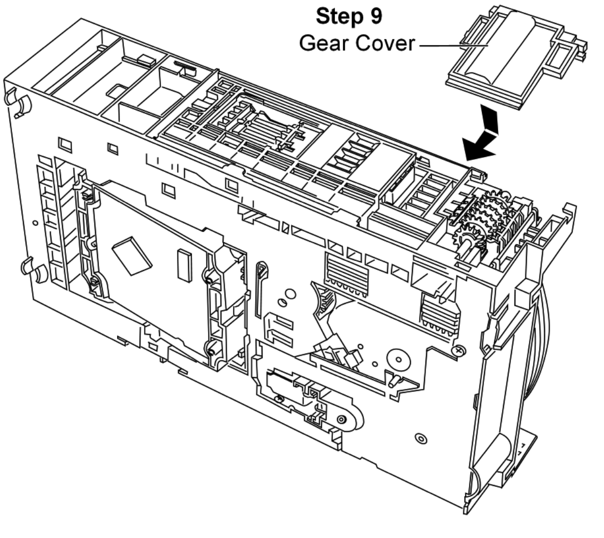

Note:
Do not exert force on the
OC Gear Spring to avoid
damage it.
fragile
OC Gear
Spring
Step 7
OC Gear
Assy

Step 7: Install the OC gear spring followed by the OC gear assy.

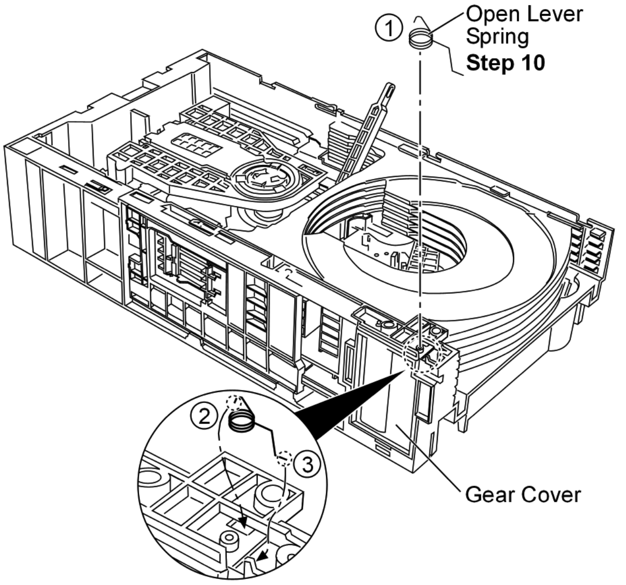
Caution: OC gear free to rotate after assembly


Front View
Open Switch Lever
Step 8

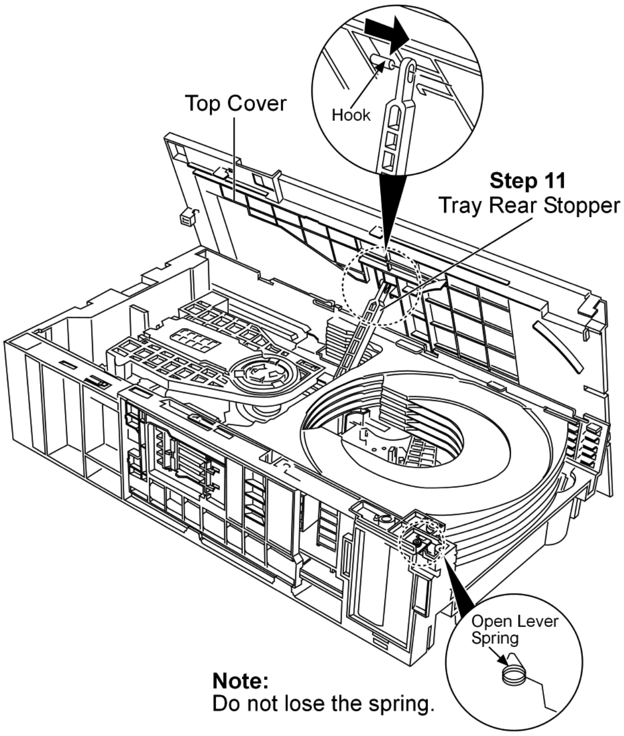
Step 8: Install the open switch lever.


Step 9
Gear Cover

Step 9: Install the gear cover as arrow shown.

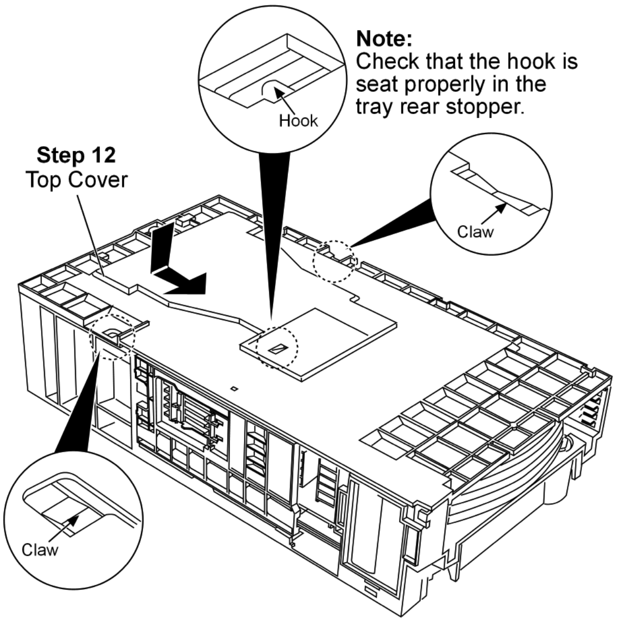

①
Open Lever Spring
Step 10
②
③
Gear Cover

Step 10: Install the open lever spring.


Top Cover
Hook
Step 11
Tray Rear Stopper
Open Lever Spring

Note:
Do not lose the spring.

Step 11: Install the top cover, fix the top cover hook to the tray rear stopper as arrow shown.

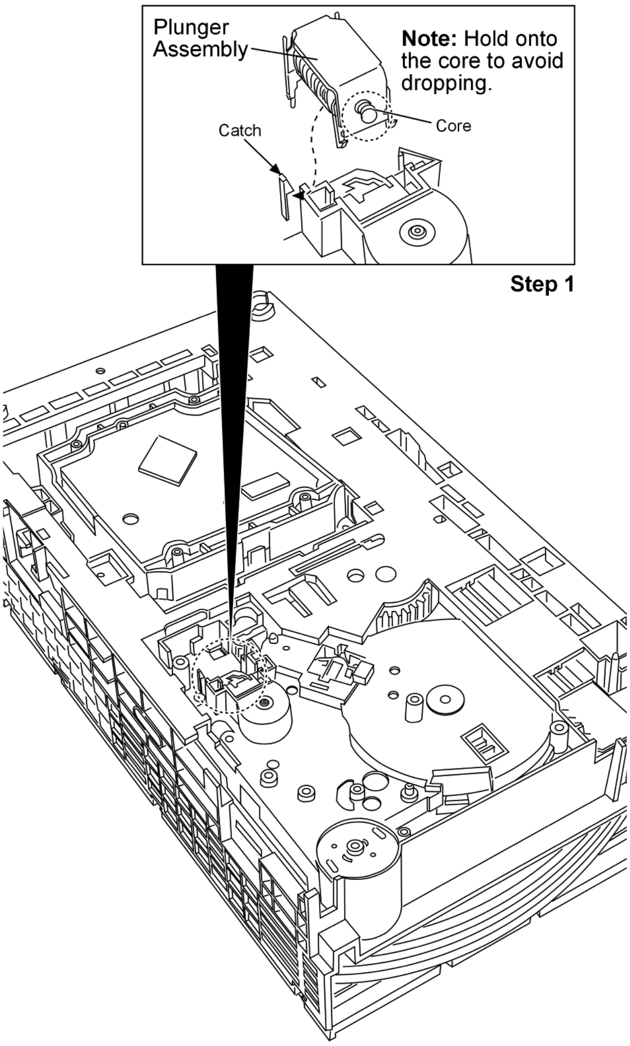

Hook
Step 12
Top Cover
Claw
Claw

Note:
Check that the hook is seat properly in the tray rear stopper.

Step 12: Fix the top cover as arrow shown, the 2 claws should be latched.

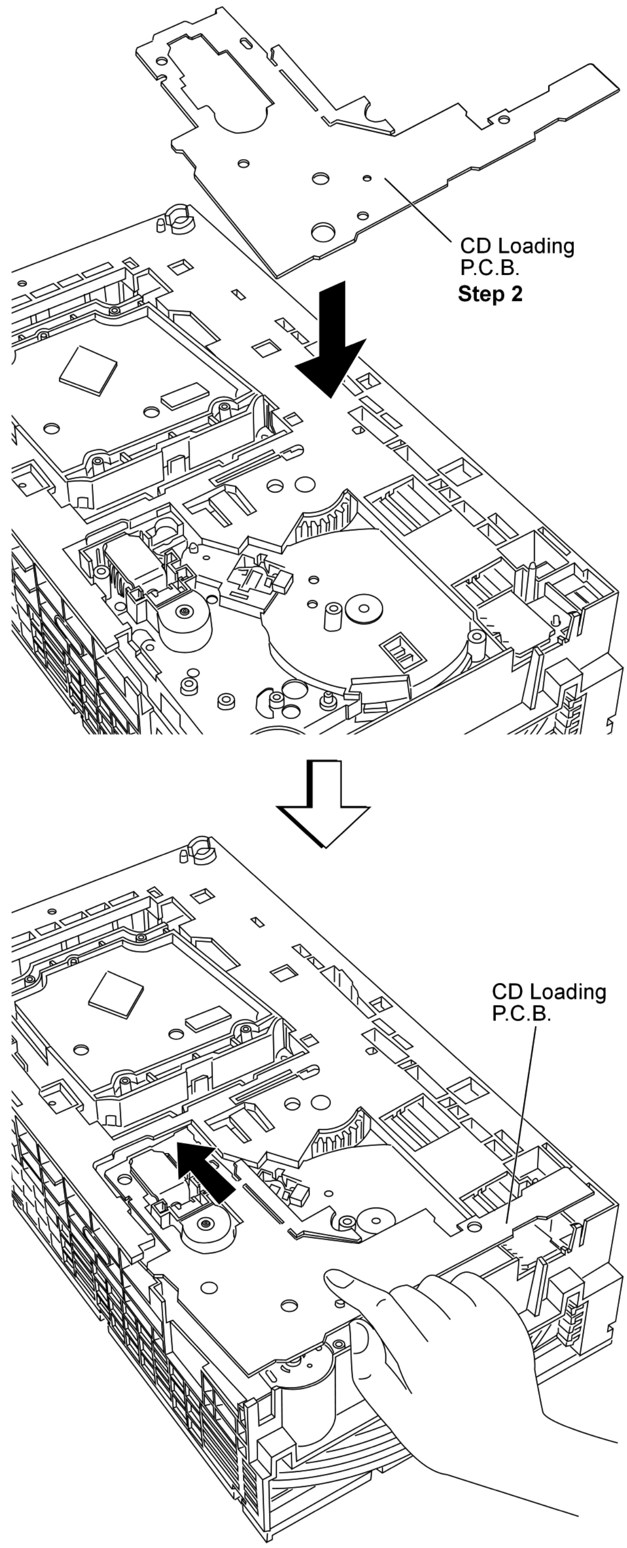
The mechanism unit will be ready to be checked using service jig or be mounted to the main unit for checking.

7.2.4. Assembly of CD Loading P.C.B.

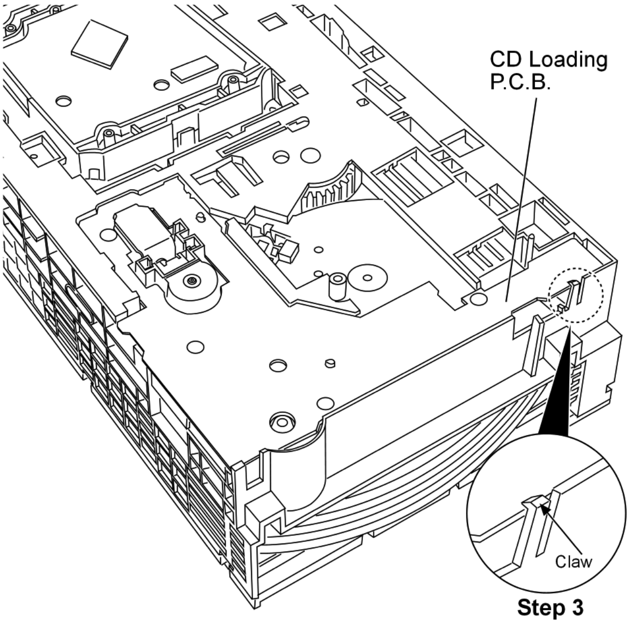

Plunger Assembly
Catch
Core
Step 1

Note: Hold onto the core to avoid dropping.

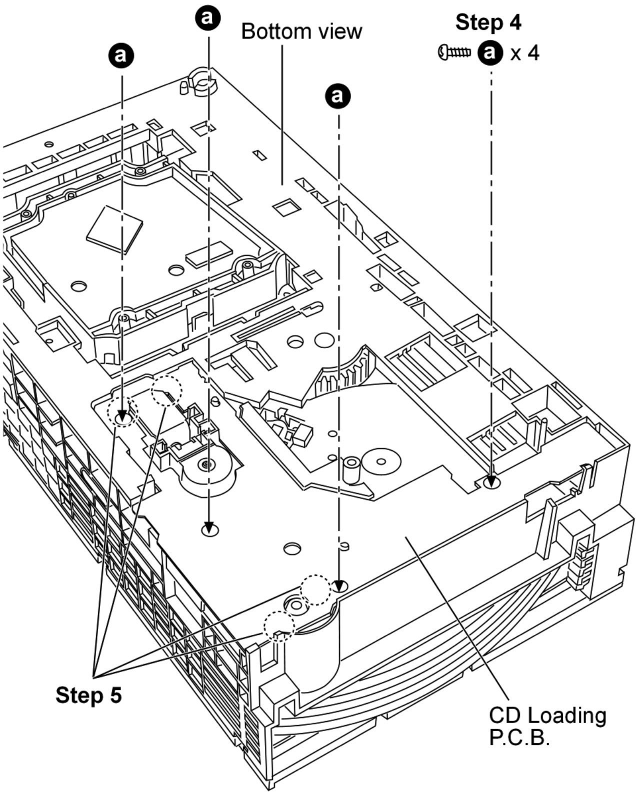
Step 1: Install the plunger assembly as arrow shown, the catch should be latched.


CD Loading
P.C.B.
Step 2
CD Loading
P.C.B.

Step 2: Install the CD Loading P.C.B. as arrows shown.


CD Loading
P.C.B.
Claw
Step 3

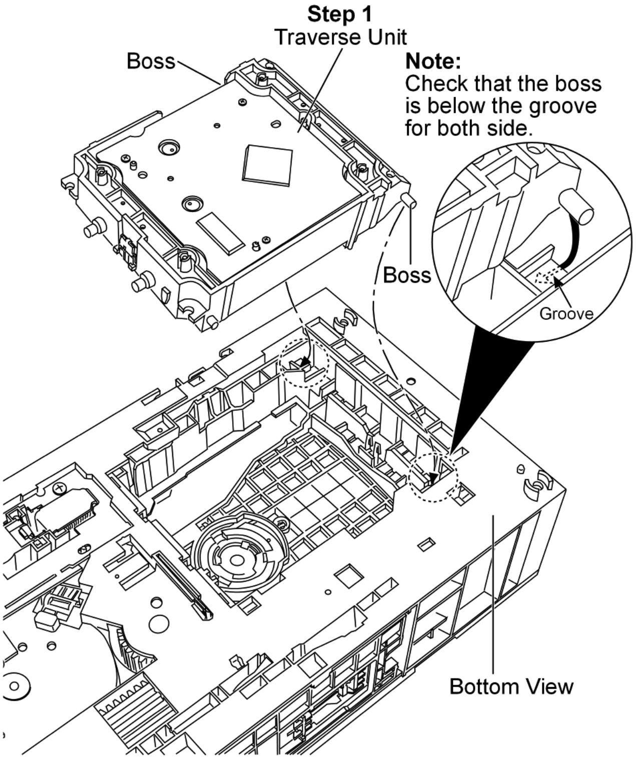
Step 3: The claw should be latched.


Bottom view
Step 4
a x 4
a
a
a
a
Step 5
CD Loading
P.C.B.

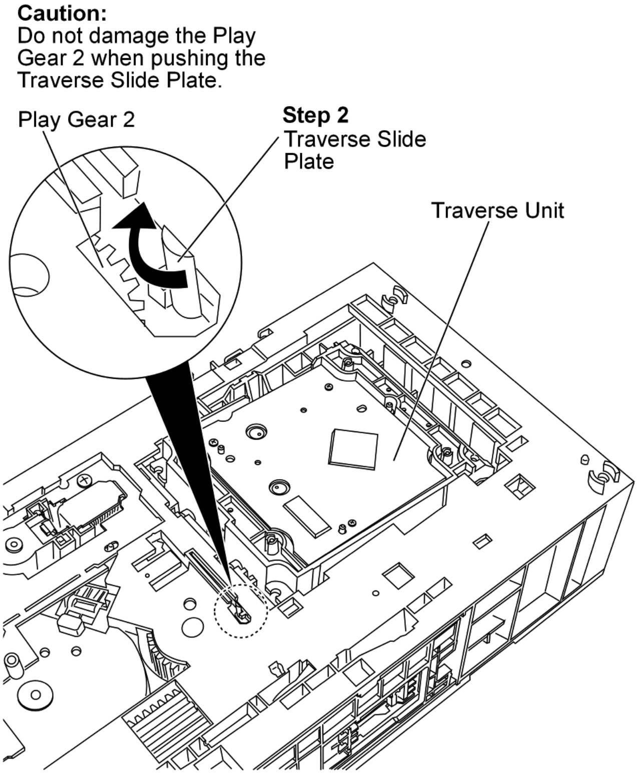
Step 4: Fix it with 4 screws.

Step 5: Solder the 4 points.

7.2.5. Assembly of Traverse Unit


Step 1
Traverse Unit
Boss
Note:
Check that the boss is below the groove for both side.
Boss
Groove
Bottom View

Step 1: Turn over the unit and install the traverse unit.


Caution:
Do not damage the Play Gear 2 when pushing the Traverse Slide Plate.
Play Gear 2
Step 2
Traverse Slide Plate
Traverse Unit

Step 2: Push the traverse slide plate as arrow shown to lock the traverse unit.

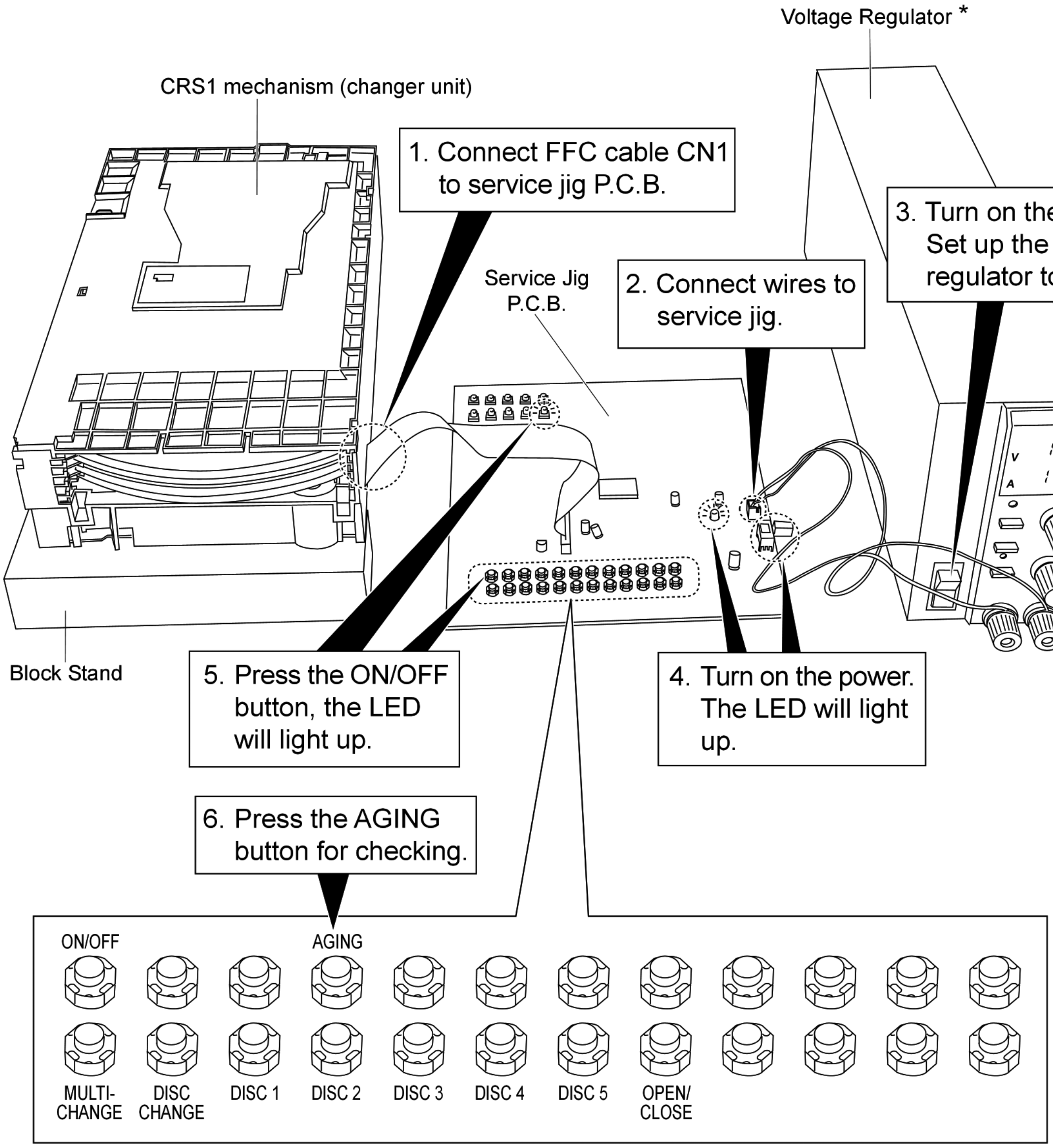
8 CRS1 (Changer Unit) Ageing / Reliability

Purpose: It is necessary to test the mechanism unit by using the Service Jig P.C.B., make sure it works in order before install it to the main unit.

8.1. Equipments

Equipments required for the set up preparation

- Voltage regulator*
- Service jig P.C.B. (RFKZ0331) [M]


Voltage Regulator *
CRS1 mechanism (changer unit)
1. Connect FFC cable CN1 to service jig P.C.B.
Service Jig P.C.B.
2. Connect wires to service jig.
3. Turn on the power. Set up the voltage regulator to 10 V.
V 10.0
A 18.8
Block Stand
5. Press the ON/OFF button, the LED will light up.
4. Turn on the power. The LED will light up.
6. Press the AGING button for checking.
ON/OFF
AGING
MULTI-CHANGE
DISC CHANGE
DISC 1
DISC 2
DISC 3
DISC 4
DISC 5
OPEN/CLOSE

* Non-supply

9 Notes of Schematic Diagram

(All schematic diagrams may be modified at any time with the development of new technology)

Note :

SW1	Open switch
SW2	Stock switch
SW3	Home switch
SW4	Top switch
SW5	Play switch

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
- **Importance safety notice :**

  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer´s specified parts shown in the parts list.

Caution !

IC, LSI and VLSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

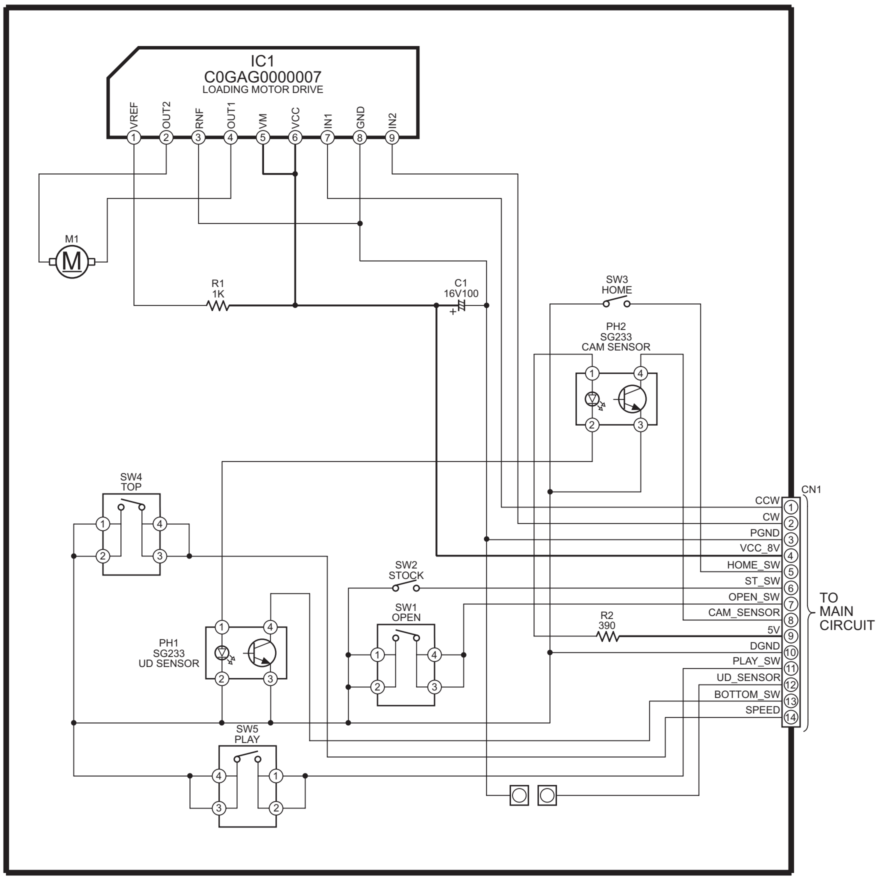
- Cover the parts boxes made of plastics with aluminium foil.
- Put a conductive mat on the work table.
- Ground the soldering iron.
- Do not touch the pins of IC, LSI or VLSI with fingers directly.

10 Schematic Diagram

10.1. CD Loading Circuit

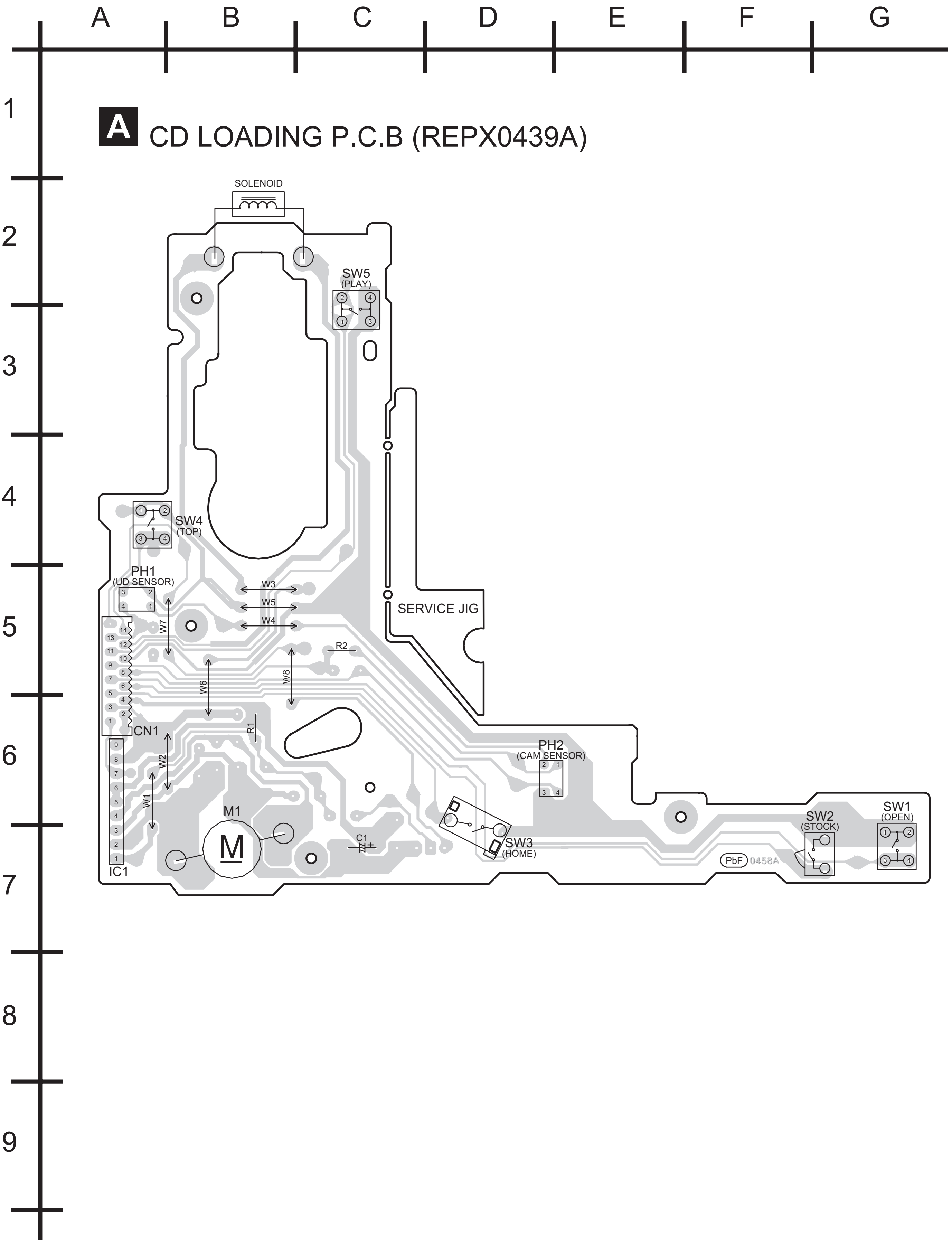
SCHEMATIC DIAGRAM - 1

CD LOADING CIRCUIT —— : +B SIGNAL LINE


IC1
C0GAG0000007
LOADING MOTOR DRIVE
VREF
OUT2
RNF
OUT1
VM
VCC
IN1
GND
IN2
1
2
3
4
5
6
7
8
9
M1
M
R1
1K
C1
16V100
+
SW3
HOME
PH2
SG233
CAM SENSOR
SW4
TOP
SW2
STOCK
SW1
OPEN
PH1
SG233
UD SENSOR
R2
390
SW5
PLAY
CN1
CCW
CW
PGND
VCC_8V
HOME_SW
ST_SW
OPEN_SW
CAM_SENSOR
5V
DGND
PLAY_SW
UD_SENSOR
BOTTOM_SW
SPEED
10
11
12
13
14
TO
MAIN
CIRCUIT

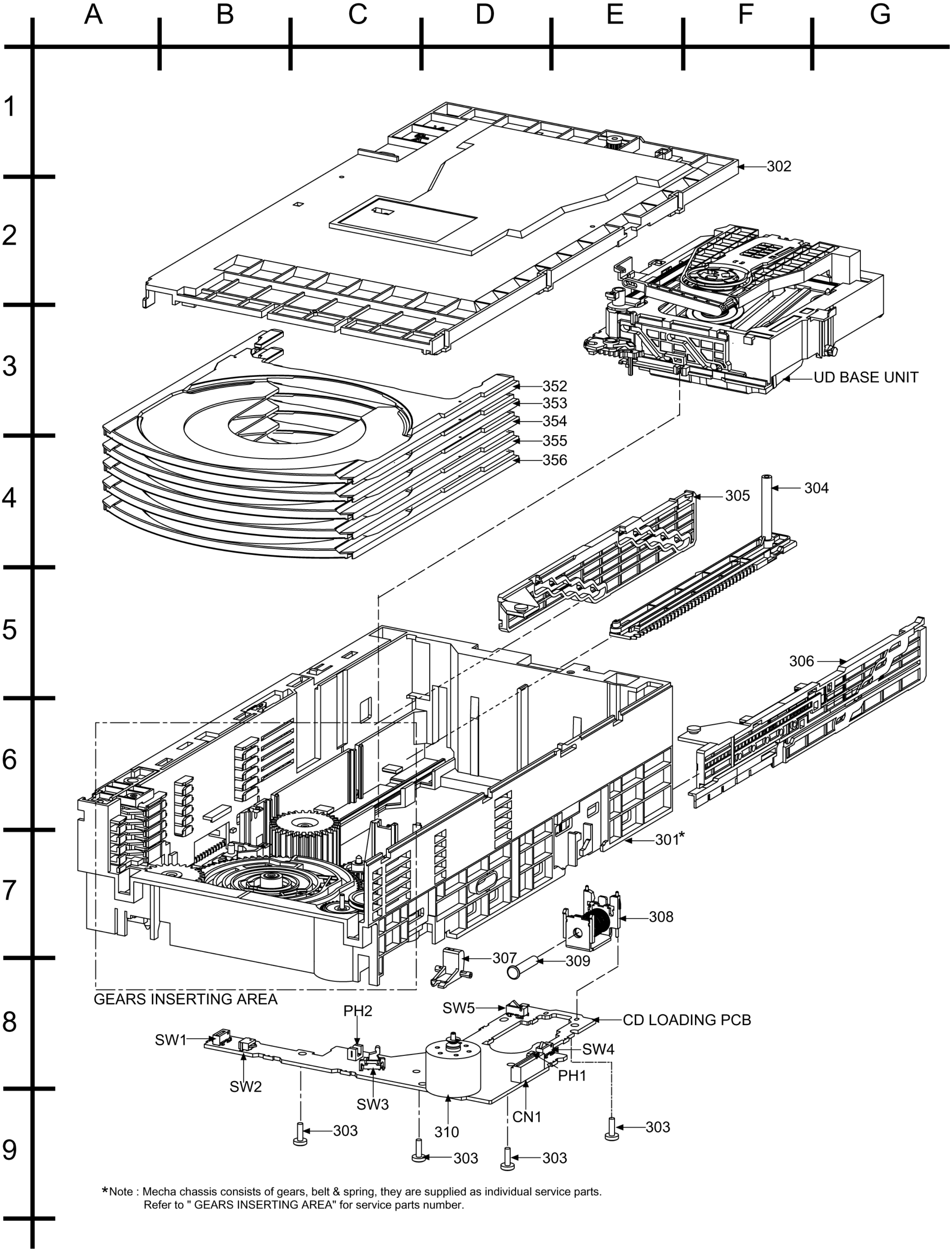
11 Printed Circuit Board

11.1. CD Loading P.C.B.

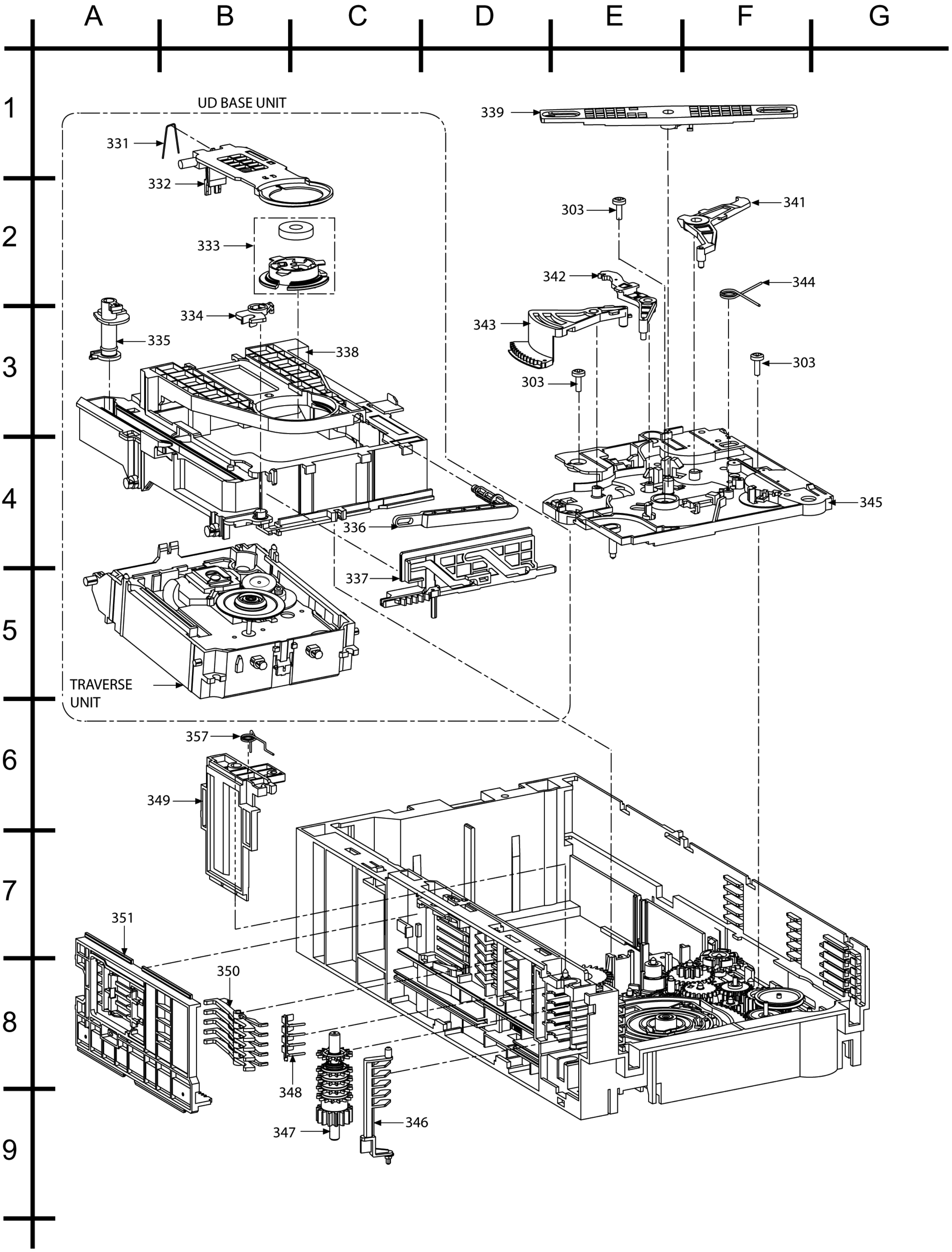

A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
A
CD LOADING P.C.B (REPX0439A)
SOLENOID
SW5
(PLAY)
SW4
(TOP)
PH1
(UD SENSOR)
W3
W5
W4
SERVICE JIG
W7
R2
W6
W8
CN1
R1
W2
W1
PH2
(CAM SENSOR)
M1
M
C1
SW3
(HOME)
SW2
(STOCK)
SW1
(OPEN)
PbF
0458A
IC1

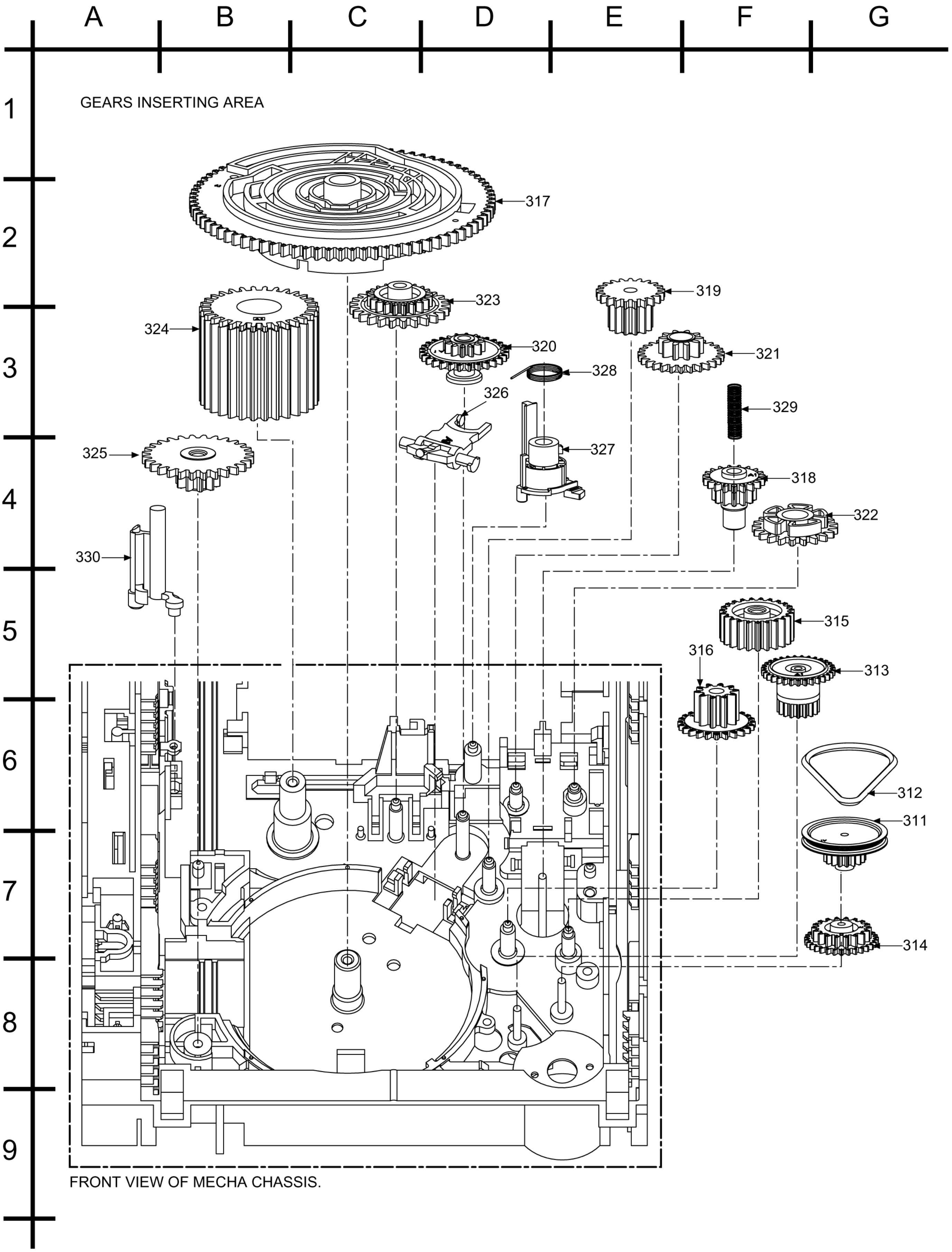
12 Exploded Views

12.1. CD Loading Mechanism


A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
302
UD BASE UNIT
352
353
354
355
356
304
305
306
301*
308
307
309
GEARS INSERTING AREA
PH2
SW5
CD LOADING PCB
SW1
SW4
PH1
SW2
SW3
CN1
303
310
303
303
303
303

*Note : Mecha chassis consists of gears, belt & spring, they are supplied as individual service parts.
Refer to " GEARS INSERTING AREA" for service parts number.


A
B
C
D
E
F
G
UD BASE UNIT
TRAVERSE
UNIT


A
B
C
D
E
F
G
GEARS INSERTING AREA
FRONT VIEW OF MECHA CHASSIS.

13 Replacement Parts List

Notes:

- Important safety notice:

  Components identified by ⚠ mark have special characteristics important for safety.

  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

  When replacing any of these components, be sure to use only manufacturers's specified parts shown in the parts list.
- Capacitor values are in microfarad (μF) unless specified otherwise, P=Pico-farads(pF); Farads.
- Resistance values are in ohms, unless specified otherwise, 1K=1,000(ohms).
- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- [M] Indicates in the Remarks columns indicates parts that are supplied by **PAVCSG**.

13.1. CD Loading Mechanism Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		TRAVERSE DECK	
301	RFKJAA340PS	MECHA CHASSIS ASS'Y	[M]
302	RMLX0029	TOP COVER	[M]
303	XTB3+8JFJ	SCREW	[M]
304	RMMX0008	TRAY DRIVE RACK	[M]
305	RMMX0009	UD RACK L	[M]
306	RMMX0010-1	UD RACK R	[M]
307	RMLX0027	PLUNGER LEVER	[M]
308	RMS0398-1	MOVING CORE	[M]
309	RAQX0001-V	PLUNGER ASS'Y	[M]
310	REMX0001	MOTOR UNIT	[M]
311	RDGX0017	PULLEY GEAR	[M]
312	RDVX0001	BELT	[M]
313	RDGX0018	RELAY GEAR 1	[M]
314	RDGX0019	RELAY GEAR 2	[M]
315	RDGX0038	RELAY GEAR 3	[M]
316	RDGX0037	MAIN DRIVE GEAR	[M]
317	RDGX0022	CAM GEAR	[M]
318	RDGX0023	SWITCHING GEAR	[M]
319	RDGX0024	LONG GEAR	[M]
320	RDGX0025	FUNCTION GEAR	[M]
321	RDGX0026	UD GEAR 1	[M]
322	RDGX0027	UD GEAR 2	[M]
323	RDGX0028	PLAY GEAR 1	[M]
324	RDGX0029	PLAY GEAR 2	[M]
325	RDGX0031-1	TRAY RELAY GEAR	[M]
326	RMLX0024	FUNCTION LEVER	[M]
327	RMLX0033	PLAY SWITCH LEVER	[M]
328	RMBX0044	PLAY LEVER SPRING	[M]
329	RMBX0040	CHANGE GEAR SPRING	[M]
330	RMLX0032	PLAY LEVER B	[M]
331	RMBX0041	CLAMPER SUPPORT PLAT	[M]
332	RMMX0011	CLAMPER SUPPORT PLAT	[M]
333	RXQX0021	CLAMPER UNIT	[M]
334	RMLX0031	PLAY LEVER A	[M]
335	RMLX0025	TRAY CATCH LEVER	[M]
336	RMLX0034	TRAY REAR STOPPER	[M]
337	RMMX0007-1	TRV SLIDE PLATE	[M]
338	RMRX0057-1	UD BASE	[M]
339	RMLX0028	UD CONNECTION LEVER	[M]
341	RMLX0036	LOCK LEVER 2	[M]
342	RMLX0035	LOCK LEVER 1	[M]
343	RDGX0030	TRIGGER GEAR	[M]
344	RMBX0043	LIMIT SPRING	[M]
345	RMQX0132-1	PITCH PLATE	[M]
346	RMLX0026	OPEN SW LEVER	[M]
347	RXQX0019	OC GEAR UNIT	[M]
348	RMCX0031	OC GEAR SPRING	[M]
349	RMQX0133-1	GEAR COVER	[M]
350	RMLX0030	TRAY LOCK LEVER	[M]
351	RMMX0006	TRIGGER SLIDE PLATE	[M]
352	RMRX0056A-1	TRAY 1	[M]
353	RMRX0056B-1	TRAY 2	[M]
354	RMRX0056C-1	TRAY 3	[M]
355	RMRX0056D-1	TRAY 4	[M]
356	RMRX0056E-1	TRAY 5	[M]
357	RMEX0042	OPEN LEVER SPRING	[M]

13.2. Electrical Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		PRINTED CIRCUIT BOARD	
	REPX0439A	CD LOADING P.C.B.	[M] (RTL)
		INTEGRATED CIRCUITS	
IC1	C0GAG0000007	IC DRIVER	[M]
		SWITCHES	
SW1	RSH1A045-1A	SW OPEN	[M]
SW2	K0L1BA000117	SW STOCK	[M]
SW3	K0L1BA000086	SW HOME	[M]
SW4	K0L1BA000078	SW TOP	[M]
SW5	K0L1BA000078	SW PLAY	[M]
		CONNECTORS	
CN1	K1MN14A00049	14P FFC CONNECTOR	[M]
PH1	B3NAA0000004	PHOTOSENSOR	[M]
PH2	B3NAA0000004	PHOTOSENSOR	[M]
		RESISTORS	
R1	D0AE102JA048	1K 1/4W	[M]
R2	D0AE101JA048	100 1/4W	[M]
		CAPACITORS	
C1	ECEA1CKA101B	100 16V	[M]